

The copyright © of this thesis belongs to its rightful author and/or other copyright owner. Copies can be accessed and downloaded for non-commercial or learning purposes without any charge and permission. The thesis cannot be reproduced or quoted as a whole without the permission from its rightful owner. No alteration or changes in format is allowed without permission from its rightful owner.



**DETERMINANTS OF SUSTAINABILITY REPORTING  
BY ENVIRONMENTALLY SENSITIVE FIRMS IN  
NIGERIA**

**ALHASSAN HALADU**



**DOCTOR OF PHILOSOPHY  
UNIVERSITI UTARA MALAYSIA  
APRIL 2017**

**DETERMINANTS OF SUSTAINABILITY REPORTING BY  
ENVIRONMENTALLY SENSITIVE FIRMS IN NIGERIA**

**By**

**ALHASSAN HALADU**



**Thesis Submitted to  
Tunku Puteri Intan Safinaz School of Accountancy,  
Universiti Utara Malaysia,  
in Fulfilment of the Requirement for the Degree of Doctor of Philosophy**

## PERMISSION TO USE

In presenting this thesis in fulfilment of the requirements for a Ph.D. Accounting from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of Tunku Puteri Intan Safinaz School of Accountancy (TISSA-UUM) where I did my thesis. It is understood that any copying or publication or use of this thesis or parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my thesis.

Request for permission to copy or to make other use of materials in this thesis in whole or in part should be addressed to:

Dean of Tunku Puteri Intan Safinaz School of Accountancy  
Universiti Utara, Malaysia  
06010 UUM Sintok  
Kedah Darul Aman



**UUM**  
Universiti Utara Malaysia

## ABSTRACT

The effects of man's actions and industrialization on the bio-system have not been pleasant. The effect of environmental challenges likes drought, desertification, erosion, gas flaring, and pollution is suffering by Nigerian now. Indirectly, it affects the social and political landscape of Nigeria. Hence, this research has been made to investigate the relationship between sustainability reporting and its determinants like environmental policy administrators, corporate financial performance, board independence and corporate foreign ownership concentration. The research primarily targeted the nature and trend of sustainability disclosure in compliance with the Global Reporting Initiative (GRI-4 or G4) which is internationally recognized for sustainability reporting standards and guidelines. Concentrating on environmentally sensitive companies in Nigeria, the research covered 67 firms over a 6-year period (2009-2014). Data were analyzed through content analysis, descriptive statistics, and robust random effect regression after embarking on proper data screening and diagnostic tests. The results showed an appreciably higher level of sustainability disclosure by environmentally sensitive firms. However, on matters of influence only board independence and duality showed significant relationships. Both of which have inverse relationship with sustainability information disclosure indicating that an independent board and division of the CEO's duty does not encourage higher disclosure of sustainability information. The significance of these results is to enable the appropriate authorities to maintain the increasing trend in disclosure with the prospect of future improvements through mandatory disclosure. In addition, the research could serve as a basis for a major overhaul of the "Code of Corporate Governance - 2011".

Universiti Utara Malaysia

**Keywords:** - sustainability reporting, environmentally sensitive firms, environmental policy administrators, corporate financial performance, Nigeria.

## ABSTRAK

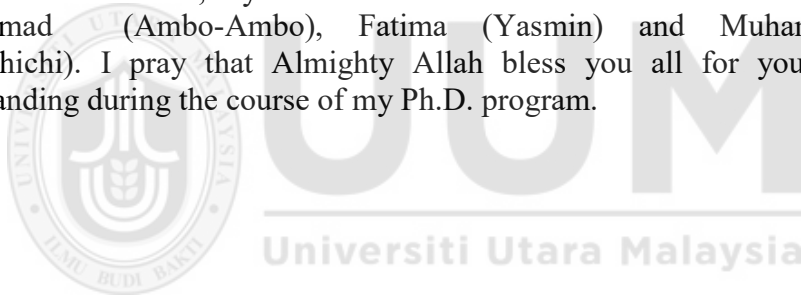
Aktiviti manusia dan industrialisasi memberikan kesan yang buruk kepada sistem bio. Kesengsaraan oleh kesan cabaran-cabaran terhadap alam sekitar seperti kemarau, kegersangan, hakisan, pembakaran gas, dan pencemaran dirasai oleh penduduk Nigeria sekarang. Secara tidak langsung, pencemaran ini memberikan kesan kepada lanskap sosial dan politik Nigeria. Oleh itu, kajian ini dijalankan untuk mengkaji hubungan di antara laporan pemampanan dan penentunya seperti pentadbir dasar alam sekitar, prestasi kewangan korporat, ciri-ciri lembaga dan penumpuan pemilikan asing korporat. Kajian ini mensasarkan kepada sifat dan kecenderungan pendedahan pemampanan selaras dengan Inisiatif Laporan Global (GR1-4 atau G4) yang diiktiraf di peringkat antarabangsa mengenai piawai dan garis panduan pendedahan pemampanan. Kajian ini memberi tumpuan kepada syarikat-syarikat peka alam sekitar yang meliputi 67 buah firma dalam tempoh 6 tahun (2009-2014) di Nigeria. Data dianalisis menggunakan kaedah analisis kandungan, statistik deskriptif dan kesan regresi teguh (robust random effect regression) selepas saringan data yang sesuai dilakukan serta ujian diagnostik. Hasil kajian menunjukkan tahap tertinggi pendedahan pemampanan oleh firma peka alam sekitar yang disenaraikan di NSE (Nigeria Stock Exchange). Walaubagaimanapun, hanya jawatankuasa bebas dan dualiti pengarah urusan menunjukkan hubungan yang signifikan. Kedua-dua faktor ini memberikan hubungan yang berlawanan dengan faktor pendedahan kemampanan maklumat, yang mana menunjukkan jawatankuasa bebas dan dualiti pengarah urusan tidak menggalakkan tahap pendedahan kemampanan maklumat yang tinggi oleh syarikat. Hasil kajian ini membolehkan pihak berkuasa yang berkenaan dalam mengekalkan kecenderungan peningkatan pendedahan kemampanan maklumat pada masa hadapan melalui pendedahan wajib. Tambahan lagi, kajian ini juga boleh dijadikan sebagai tanda aras dalam rombakan utama terhadap “Kod Tadbir Urus Korporat, 2011”.

**Kata kunci:** - laporan kemampanan, pendedahan kemampanan, firma peka alam sekitar, pentadbir dasar alam sekitar, prestasi kewangan korporat, Nigeria.

## ACKNOWLEDGEMENT

Many thanks to Almighty Allah for graciously giving me all privileges. I pray that the gentle souls of my parents especially my mother Hajia Fatima Conteh Haladu, who passed away on the 15<sup>th</sup> January 2015; rest in perfect peace. Ameen! I have the honour to acknowledge my employers and Tunku Puteri Intan Safinaz School of Accountancy for giving me the opportunity to pursue this program. My heartfelt thanks to my Supervisor Dr. Basariah Bt. Salim for her esteem guidance that matches only the best in academics. I pray that Allah reward her entire family a million fold. Let me also recognize the efforts of my External Examiner Associate Professor Dr. Hafiz-Majdi Ab Rashid and Internal Examiner Dr. Mudzamir Mohamed for their invaluable contributions to the success of this work.

My gratitude to Professor. Dr. Noor Azizi B. Ismail, Professor. Dr. Nik Kamariah Nik Mat, Associate Professor Dr. Chek Derashid and Dr. Ku Maisurah Ku Bahador. Many thanks to Mr. Mordecai Ladan, Mr. Jonathan Bawa (DPR), Mr. Usman Alex Kadiri (NSE), Dr. Ahmed R. Kasim, and Mr. Lawal Lukman (NESREA). Thanks to my colleagues like Dr. Abdulsalam Mas'ud, Dr. Nasiru Yunusa, Dr. Abdurrahman Adamu Pantamee, Dr. Usman Aliyu, Dr. Osazuwa Nosakhare Peter, and Dr. Murtala Musa Kaura. Special acknowledgement to my wife Jamila Abbas Hussaini, my brother-in-law Alhassan Abbas Chamo and my children Muhammad (Ambo-Ambo), Fatima (Yasmin) and Muhammad Sameer (Kirikichichi). I pray that Almighty Allah bless you all for your patience and understanding during the course of my Ph.D. program.



## TABLE OF CONTENTS

<b>TITLE PAGE</b>	<b>i</b>
<b>CERTIFICATION OF THESIS WORK</b>	<b>ii</b>
<b>PERMISSION TO USE</b>	<b>iv</b>
<b>ABSTRACT</b>	<b>v</b>
<b>ABSTRAK</b>	<b>vi</b>
<b>ACKNOWLEDGEMENT</b>	<b>vii</b>
<b>TABLE OF CONTENTS</b>	<b>viii</b>
<b>LIST OF TABLES</b>	<b>xii</b>
<b>LIST OF FIGURES</b>	<b>xiii</b>
<b>LIST OF APPENDICES</b>	<b>xiv</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xv</b>
<b>DECLARATION</b>	<b>xviii</b>
<b>DEDICATION</b>	<b>xix</b>

### **CHAPTER ONE INTRODUCTION**

1.1	Background of the Research	1
1.2	Problem Statement	11
1.3	Research Questions	16
1.4	Research Objectives	17
1.5	Scope of the Research	18
1.6	Significant of the Research	20
1.7	Definition of Key Terms	22
1.7.1	Environmentally Sensitive Firms	22
1.7.2	Non-Environmentally Sensitive or Environmentally Non-Sensitive Firms	23
1.7.3	Environmental Policy Administrators	23
1.8	Organization of the Thesis	23

### **CHAPTER TWO LITERATURE REVIEW**

2.1	The Development of Sustainability Reporting	24
2.2	The Concept of Sustainability Reporting	26
2.3	Objectives of Sustainability Reporting	30
2.4	Advantages of Sustainability Reporting	31
2.5	Challenges to Sustainability Reporting	34
2.6	The Concept of Sustainable Development	35
2.7	Sustainability Reporting Standards and Guidelines	38
2.7.1	Global Reporting Initiative	40
2.7.1.1	The Reporting Principles of GRI Framework	42
2.7.1.2	GRI Sustainability Reporting Guidelines [G1(2000) and G2 (2002)] Framework	43
2.7.1.3	Sustainability Reporting Guidelines Version G3 & G3.0 (2006-2011) and Version G3.1 (2011-2013) Framework	46
2.7.1.4	Major Content Disclosure of G3 (G3.0 and G3.1) Frameworks	47
2.7.1.5	G4 Sustainability Reporting Principles and Standard Disclosures	49



2.7.1.6	Major Upgrading Disclosure Contents of G4 (2013)	50
2.7.1.7	The Contents of Standard Disclosure of G4	53
2.7.2	Global Reporting Initiative (GRI) Empirical Results	61
2.7.3	A Preview of EGASPIN	64
2.8	Sustainability Reporting in the Non-Oil & Gas Sector in Nigeria	70
2.8.1	Environmental Challenges to the Non-Oil & Gas Sector	70
2.8.2	Environmental Policy Instruments in the Non-Oil & Gas Sector of Nigeria	74
2.9	Environmental Effects of Petroleum Mining in the Niger Delta	76
2.10	Sustainability Reporting and Accounting	79
2.11	Factors Influencing Sustainability Reporting (Determinants)	81
2.11.1	Corporate Characteristics	81
2.11.2	General Contextual Factors	90
2.11.3	Internal Contextual Factors	96
2.12	A critical Examination of Discoveries in Sustainability Reporting Relationships	100
2.13	The Nigerian Corporate Governance Code (2011) as it affects Sustainability Reporting	106
2.14	Summary of the Chapter	108
 <b>CHAPTER THREE METHODOLOGY</b>		
3.1	Introduction	110
3.2	Theoretical and Conceptual Framework	111
3.2.1	Institutional Theoretical Framework	113
3.2.2	Stakeholder Theoretical Framework	116
3.2.3	Legitimacy Theoretical Framework	118
3.2.4	Capital Need Theoretical Framework	121
3.3	Hypotheses Development	127
3.3.1	Environmental Policy Administrators	128
3.3.2	Corporate Performance (Financial/Economic)	130
3.3.3	Board Characteristics	133
3.3.4	Foreign Corporate Ownership Concentration and Sustainability Disclosure	138
3.4	Research Design	139
3.5	Scope and Population of the Research	141
3.6	Sampling Technique and Sample Size	142
3.7	Research Models Specification	145
3.8	Data Description	146
3.9	Variables of the Research	148
3.9.1	Dependent Variable	148
3.9.2	Independent Variables	152
3.9.3	Control Variable	153
3.10	Measurement of Variables: Estimation Techniques and Rating Scales	154
3.10.1	Sustainability Reporting	154
3.10.2	Environmental Policy Administrators	155
3.10.3	Corporate Performance	158
3.10.4	Board Characteristics	159
3.10.5	Corporate Foreign Ownership Concentration	160
3.11	Methods of Data Collection	161
3.12	Techniques of Data Analysis and Evaluation	162

3.13	Sources of Data	163
3.14	Data Screening and Cleaning	165
	3.14.1 Missing Data (Omitted Variables) Statistics	165
	3.14.2 Replacement of Missing Data	167
	3.14.3 Removal of Outliers	168
3.15	Dependent Variable's Validity and Reliability Test	169
	3.15.1 Validity Measurement of the Dependent Variable	169
	3.15.2 Reliability Measurement of the Dependent Variable	171
3.16	Validity and Reliability Tests for Mean Value Index for DPR/NESREA & NSE	172
3.17	Normality Tests	172
3.18	Summary of the Chapter	176

## **CHAPTER FOUR RESULTS AND DISCUSSIONS**

4.1	Introduction	178
4.2	The Nature and Trend of Sustainability Disclosure (Descriptive Statistics)	178
4.3	Analysis of the Nature of Sustainability Disclosure of Sub-Items by Sectors	182
	4.3.1 Agricultural Sector	183
	4.3.2 Construction/Real Estate Sector	184
	4.3.3 Healthcare Sector	185
	4.3.4 Industrial Goods Sector	186
	4.3.5 Natural Resources Sector	187
	4.3.6 Oil & Gas Sector	188
4.4	Analysis of the Simple Average Disclosure Index (SADI)	192
4.5	Analysis of Sustainability Disclosure Trend by Sector Reporting	194
	4.5.1 Agricultural Estate Sector	194
	4.5.2 Construction/Real Estate Sector	194
	4.5.3 Healthcare Sector	195
	4.5.4 Industrial Goods Sector	196
	4.5.5 Natural Resources Sector	196
	4.5.6 Oil & Gas Sector	197
	4.5.7 Average Annual Trend Disclosure	198
4.6	Analysis of Annual Environmental Items Disclosure Trend Increase	199
4.7	Tests on Disclosure Trends	203
	4.7.1 Jonckheere-Terpstra (J-T) Test	203
	4.7.2 Independent Sample Test (Mean Grouping Statistics)	206
4.8	The Nature of Foreign Ownership Concentration and Sustainability Disclosure	208
4.9	Analysis of Sustainability Disclosure	210
	4.9.1 Descriptive Statistics	210
	4.9.2 Interpretation of the Standard Deviation	215
	4.9.3 Correlation Coefficient	218
	4.9.4 Regression Analysis	222
	4.9.5 Random Effect Model and Pooled OLS Test	224
	4.9.6 Fixed Effect and Random Effect Test	224
4.10	Further Normality Diagnostic Tests	227
	4.10.1 Multicollinearity Test	227
	4.10.2 Autocorrelation Test	228
	4.10.3 Goodness of the Model Test	229

4.10.4	Model Specification Test	229
4.10.5	Omitted Variables Test	230
4.10.6	Heteroskedasticity Test	230
4.11	Empirical Results and Discussions	232
4.12	Further Analysis of Variables	234
4.12.1	Analysis by Categories	234
4.12.2	Moderating Effects of Environmental Policy Administrators (EPA)	235
4.13	Test of Hypotheses	236
4.14	Summary of the Chapter	238
<b>CHAPTER FIVE CONCLUSION AND RECOMMENDATIONS</b>		
5.1	Introduction	239
5.2	Conclusion	241
5.3	Recommendations for Future Research	243
<b>REFERENCES</b>		<b>246</b>



## LIST OF TABLES

Table 2.1	Global Sustainability Reporting Organizations	39
Table 2.2	Total Number of G4 Disclosure Indicators	53
Table 2.3	Summary of GRI Evolution (1997-2013)	59
Table 2.4	Laws Governing Pollution in Nigeria	65
Table 2.5	Major Sections of EGASPIN (1991)	66
Table 3.1	Relevant Independent Variables and Theories of the Research Framework	127
Table 3.2	Environmentally Sensitive Industries in Nigeria (2009-2014)	142
Table 3.3	Criteria for Sample Selection	143
Table 3.4	Standard Disclosure Items (Dependent Variables)	150
Table 3.5	Measurements of Independent Variables	153
Table 3.6	Mean Value Index Scale (MVI) – NSE	156
Table 3.7	Mean Value Index Scale (MVI) – DPR & NESREA	157
Table 3.8	Summary of Data Sources	164
Table 3.9	Missing Data	167
Table 3.10	Replaced Missing Values	168
Table 3.11	List of Outliers	169
Table 3.12	Validity Statistics for Simple Average Disclosure Index	170
Table 3.13	Reliability Statistics for Simple Average Disclosure Index	171
Table 3.14	New Validity and Reliability Test for SADI	171
Table 3.15	Validity and Reliability of Mean Value Index Results	172
Table 3.16	Shapiro-Wilk Test for Normal Data	173
Table 4.1	Descriptive Statistics of Sustainability disclosure Sub-Items	179
Table 4.2	Jonckheere-Terpstra Test on Sub-Items Disclosure	204
Table 4.3	Jonckheere-Terpstra Test of Dependent Variable Items with SD4 (Economic Issues) – Pre & Post IFRS	205
Table 4.4	Jonckheere-Terpstra Test of Dependent Variable Items without SD4 (Economic Issues) – Pre & Post IFRS	206
Table 4.5	Independent Sample Test (Mean Group Statistics) for Pre (1) & Post (2) IFRS	207
Table 4.6	Independent Sample Test (Pre & Post IFRS) – Significance	208
Table 4.7	New Validity and Reliability Statistics for SADI	210
Table 4.8	Descriptive Statistics of Dependent Variable Items	210
Table 4.9	Descriptive Statistics of Dependent and Independent Variable Items	212
Table 4.10	Interpretation of Standard Deviation	215
Table 4.11	Correlation Matrix	220
Table 4.12	Tabulation of Fixed, Random & Pooled OLS Coefficient Statistics	225
Table 4.13	VIF after Applying the Dummies (CO)	228
Table 4.14	Functional Form	230
Table 4.15	Estimated Random Effects Robust Regression Results	233
Table 4.16	Estimated Categorized Random Effects Robust Regression Results	234
Table 4.17	Estimated Moderating Random Effects of Environmental Policy Administrators	235
Table 4.18	Hypothesis Summary	236

## LIST OF FIGURES

Figure 2.1	GRI-4 (G4) Sustainability Disclosure Framework	60
Figure 3.1	Theoretical Framework of the Research	124
Figure 3.2	Histogram	174
Figure 3.3	P-Kernel Density Estimate	175
Figure 3.4	P-Plot Graph	175
Figure 4.1	Nature of Disclosure – Agriculture	184
Figure 4.2	Nature of Disclosure - Construction/Real Estate	185
Figure 4.3	Nature of Disclosure – Healthcare	186
Figure 4.4	Nature of Disclosure - Industrial Goods	187
Figure 4.5	Nature of Disclosure - Natural Resources	188
Figure 4.6	Nature of Disclosure - Oil & Gas	189
Figure 4.7	Nature of Disclosure - Economy Average	191
Figure 4.8	Behaviour of Disclosure – Economy Average	192
Figure 4.9	Sectorial Simple Average Disclosure Index (SADI)	193
Figure 4.10	Trends in Agriculture	194
Figure 4.11	Trends in Construction/Real Estate	195
Figure 4.12	Trends in Healthcare	195
Figure 4.13	Trends in Industrial Goods	196
Figure 4.14	Trends in Natural Resources	197
Figure 4.15	Trends in Oil & Gas	197
Figure 4.16	Sectorial Average Trend	198
Figure 4.17	Annual Economy Trend	199
Figure 4.18	Percentage Rise in Disclosure Trend (2009-2014)	201
Figure 4.19	Annual Trend of Environmental Item Disclosure	202
Figure 4.20	Foreign Ownership Concentration Sustainability Disclosure Rate (SADI)	209

## LIST OF APPENDICES

Appendix A	Listed Companies in the Nigerian Stock Exchange 2011/2012 & 2012/2013	288
Appendix B	Environmentally Sensitive List of Companies that make up the Population of the research	290
Appendix C	Guide to Sample Selection for Each Sector	293
Appendix D	List of Companies that make up the Sample Size of the research	294
Appendix E	Sample Codes for the Relevant Years	296
Appendix F	Codes and Measurement Indices of the Variables	297
Appendix G	Apportionment of Scores for Dependent Variables	300
Appendix H	Letter to Respondent	302
Appendix I	Research Questionnaire for Ph.D. Thesis (DPR & NESREA)	303
Appendix J	Research Questionnaire for Ph.D. Thesis (NSE)	304
Appendix K	Results of Data Analysis (Stata13SE, SPSS22 & Excel 2013)	305
Appendix L	Descriptive Statistics	312
Appendix M	Diagnostic Tests	318
Appendix N	Robust Regression	321
Appendix O	Global Reporting Initiative 4 (GRI-4 or G4) Sustainability Disclosure Indicators	325
Appendix P	Key Contacts on Policy Administrators	327



## LIST OF ABBREVIATIONS

BC	Board Characteristics
BC1	Board Independence
BC2	Duality
BC3	Environmental Experts
BC4	Board Size
BOD	Board of Directors
BPPM	Business Planning and Policy Model
CAC	Corporate Affairs Commission
CEO	Chief Executive Officer
CG	Corporate Governance
CO	Foreign ownership concentration
CO <sub>2</sub>	Carbon Dioxide
CP	Corporate Performance
CP1	Firm Size
CP2	Financial Leverage
CP3	Market-to-Book Value
CSED	Corporate Social environmental disclosure
CSER	Corporate Social environmental reporting
CSR	Corporate Social Reporting
CSRM	Corporate Social Reporting Model
DPR	Department of Petroleum Resources
EER	Environmental Evaluation Report/Environmental Effects Reporting
EGASPIN	Environmental Guidelines and Standards for the Petroleum Industry in Nigeria
EIAR	Environmental Impact Assessment Report
EMA	Environmental Management Accounting
EMAS	Environmental Management Accounting System
EMC	Environmental Management Cost
EPA	Environmental Policy Administrator
FME	Federal Ministry of Environment
G4	GRI (2013) – Latest Version of GRI
GGW	Great Green Wall
GHG	Greenhouse Gases
GJN	Global Justice Now
GSD	General Standard Disclosures
IDA	International Development Agency
IFRS	International Financial Reporting Standards
ILO	International Labour Organization
IOC	International Oil Companies
IPIECA	International Petroleum Industry Environmental Conservation Association
ISO	International Standard Organization
IUC	International Union for Conservation
IYC	Ijaw Youth Council
MAN	Manufacturing Association of Nigeria
MASSOB	Movement for the Actualization for the Sovereign State of Biafra
MDG	Millennium Development Goals

MEND	Movement for the Emancipation of the Niger Delta
MNC	Multinational Corporations
MVI	Mean Value Index
NDA	Niger Delta Avengers
NDPSF	Niger Delta People Salvation Front
NDPVF	Niger Delta People Volunteer Force
NEPA	National Environmental Protection Agency
NESREA	National Environmental Standards and Regulations Enforcement Agency
NEWMAP	Nigeria Erosion and Watershed Management Project
NGO	Non-Governmental Organizations
NIWMF	Nigeria Integrated Waste Management Facility
NLNG	Nigerian Liquefied Natural Gas
NNPC	Nigerian National Petroleum Corporation
NO <sub>2</sub>	Nitrogen Dioxide
NPMS	National Production and Monitoring System
OECD	Organization for Economic Cooperation and Development
PA1	Nigerian Stock Exchange
PA2	DPR/NESREA
PIB	Petroleum Industry Bill
RUWES	Rural Women Energy Security
RWES	Rural Women Empowerment Scheme
SADI	Simple Average Disclosure Index
SD	Standard Disclosure
SD1	Disclosure on Company's Strategy & Analysis
SD2	Disclosure on Company's Organizational Profile
SD3	Disclosure on Company's Governance
SD4	Disclosure on Company's Economic Issues
SD5	Disclosure on Company's Sustainability issues
SD6	Disclosure on Company's Social Issues
SD7	Disclosure on Company's Labour Practice & Decent Work
SD8	Disclosure on Company's Human Rights Issues
SD9	Disclosure on Company's Product Responsibility
SD10	Disclosure on Company's Ethical Policies on Environment
SEAR	Social and Sustainability accounting and Reporting
SEC	Security & Exchange Commission
SEM	Structural Equation Model
SEPA	State Environmental Protection Agency
SMA	Sustainability Management Accounting
SME	Small & Medium Enterprises
SO <sub>2</sub>	Sulphur Dioxide
SPDC	Shell Petroleum Development Company
SSD	Specific Standard Disclosure
TBL	Triple Bottom Line Reporting
UK	United Kingdom (Great Britain)
UN	United Nations Organization
UNCSD	United Nations Commission on Sustainable Development
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNSSI	United Nations Sustainable Stock Exchange Initiative
VRA	Volta River Authority



WBCSD	World Business Council for Sustainable Development
WCED	World Commission on Environment and Development
WCS	World Conservation Strategy
WRI	World Resources Institute
WWF	World Wide-Life Fund



## DECLARATION

I declare that this Thesis is based on a study undertaken by me on the “Determinants of Sustainability disclosure by Environmentally Sensitive Firms in Nigeria” in Tunku Puteri Intan Safinaz School of Accountancy (TISSA-UUM), College of Business, Universiti Utara, Malaysia. This research work was conducted solely by me under the supervision of Dr. Basariah Bt. Salim. I proudly declare that this work has never been previously submitted for the award of a degree elsewhere and all ideas and views contain in it are products of my research. Where the views of others have been expressed, proper citations were made and they have been duly acknowledged.



---

**Alhassan Haladu**  
**April 2017**



## DEDICATION

This Ph.D. Accounting research work is dedicated to my late father whose high sense of discipline, principles, and steadfastness has made it easier for me to survive under any social, traditional, cultural, economic, and political conditions. While alive, he had always reminded and warned me of my future and life after him. Today I very much appreciate his effort as I have come to understand the full meaning of his words (*Success!*). May Almighty Allah grant him a special place in Al-Janatul Firdausi and may He continue to bless his family and entire legacy. I pray that his gentle soul rest in perfect peace. Ameen Thuma Ameen!

**MALLAM HALADU SULAIMAN HAFIZ WASAI (1920-1987)**



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the research

Traditionally, accounting has primarily focused on the financial performance of firms. Ayoola and Olasanmi (2013) suggested that this practice lacks an orientation towards the future as it emphasize on promoting the interest of shareholders only. Managers who wish to maximize businesses' potential should consider broad stakeholders' interest, and decisions taken at any time must consider the implication on all stakeholders (Ayoola & Olasanmi, 2013; Barde, 2009, Huang, Pepper & Bowrey, 2014). Today it has become acceptably clear that the governance and performance of companies in relation to sustainability issues are paramount in their long-term success and that of society as a whole; especially companies' desire for financial gains and improved corporate image (Akbas, 2014; Ayoola & Olasanmi, 2013).

Our environment consists of bio-diversification of the planet, which include different plant and animal species and microorganisms which must be conserved and preserved as a sign of recognition of its significance (Shah, 2014). However, this beautiful gift of nature has come under serious threat facing different types of problems to the extent that today this threat has become a global issue. Problems like climate change, energy demand and supply, waste disposal and removal, species loss, forest loss, resource depletion, alteration of atmospheric conditions and other sustainability issues are growing in magnitude (Beaudry, 2014; Creel, 2010). According to Beaudry (2014), the significant factors responsible for environmental

damage are population pressure, wars, deforestation and perhaps most importantly industrialization. Industrialization shows how the effects of man's productive ability and capacity have devastated the environment especially the emission of Greenhouse gases (GHGs). Such effects range from global warming, climate change, resources depletion, population pressure, global water crises, endangered species, nuclear energy, food insecurity, chemical constituents and pandemics (Beaudry, 2014).

The year 2014 according to Borenstein (2014) was one of earth's hottest year on record since 1880 with average temperatures across global land and ocean surfaces standing at 1.24°F (0.69°C). In fact, September of 2014 alone recorded an average temperature of 60.3°F and the first 9 months of that year recorded an average temperature of 58.72°F which equals the 1998 record (Zaragoza, 2014). Of the 2°C warmth danger to the earth Curry (2014), posit that from 1850 to 1900 the earth's surface has received a warmth of 0.8°C remaining 1.2°C more. The global average temperature has now increased by about 1.4°F (0.8°C). Additionally, the economic success enjoyed by China in recent years could be stated as a major contributor to this as China has now surpassed America as the world's highest emitter of GHGs (Beaudry, 2014). It is therefore not surprising that West (2008), was so concern with damages being done to the environment that he advised on the reduction, reuse, recycle, use of less heat, acquisition of energy efficient products, and encouraged energy conservation.

Increase in world population is another environmental factor, which has put heavy demand on planetary resources. Curry (2014) stated that in the estimated 50-year period between 1963 and 2014 the world's population estimated in 2014 at about 6.6 billion, has increased by over 67%. This increase puts collective pressure on planetary resources which, have led to drastic depletion from exploitation. For

instance the world's tropical rainforest have lost 80% of its originality, emission of GHGs have risen by some 400%, there is also high level of resource consumption with the US alone consuming 25% of world's resources (Curry, 2014). Moreover, experts have also argued that damages to the environment is the main factor responsible for diseases in the form of new resistance viruses and bacterial such as avian flu, swine flu, and even Ebola (Beaudry, 2014).

It was not until 1962 that Rachel Carson in her book *Silent Spring* (Malarvizhi & Yadav, 2009; IISD, 2013), raised questions about industrialization's impact on natural resources, human health and the environment. Prior to any involvement by the United Nations, Bell and Lundblad (2011) confirmed that nonfinancial reporting has been around since the 1970's when Abt. & Associates attached an environmental report to their annual reports. However, since the 1972 Stockholm United Nations Conference, sustainability issues have attained universal recognition (Anyanwu, 2012; Asuquo, 2012). With the establishment of the World Commission on Environment and Development (WCED), also known as the Brundtland Commission by the United Nations, sustainability issues took a drastic turn (Bartelmus, 2008). In a landmark report in 1987, the WCED came out with the term "Sustainable Development" which it defines as "development that meets the needs of the present generation without compromising the ability of future generations to meet their needs". A term that laid the foundation for modern day corporate governance and sustainability practices by companies. This as observed by Bartelmus (2008), led to the 1992 Earth Summit in Rio de Janeiro captioned "Earth and Development". Ten years later in 2002, the Johannesburg summit reaffirm integrated reporting by corporate bodies, which according to Agenda 21 of its declaration should disclose economic, environmental and social information. Before

then the Kyoto Protocol was signed in December 1997 and came into force on February 2005. The Protocol which is an agreement by industrialized nations on GHGs, aimed at collectively reducing industrialized countries' emissions by 5.2% by the year 2012 (Carbonify.com, 2014). This target was however, not attained by the 2012.

Of greater significance to sustainability reporting is the 2002 Johannesburg Summit which reaffirms integrated reporting under Agenda 21. This agenda moves global corporate reporting to a new height from the traditional dissemination of economic and financial information. In its place emerged mega reporting otherwise known as triple P reporting (Mathews, 2009). Mega reporting is integrated reporting that discloses information on economic, environmental and social (profit, planet and people) issues by companies. The Global Reporting Initiative (GRI) framework then emerged the most generally accepted standard for this system of information disclosure. Unlike ISO14001 and ISO26000 disclosure standards which, concentrated on environmental management system and social responsibility respectively; GRI encompasses all the three pillars of sustainability reporting (Haslinda & Fuong, 2010; Ward, 2010). Information are disclosed under the GRI standard on economic, environmental and social issues. While economic information is centered on financial and market performance, environmental information with regard to biodiversity, effluents, emission and wastes of firms are among other things expected to be disclosed. Social disclosure is expected to capture labour practices, human right issues and product responsibility. Details of these have been discussed in chapter two under Section 2.7.1.

Ever since positive moves have been made to preserve the environment. Just recently, Steven Heintz (Rockefeller Foundation) together with some 650 individuals

and 180 institutions with assets worth over \$50 billion, pledge to divest from fossil fuels (Volconici, 2014). In 2014, rich countries of the world pledged about \$9.3 billion to help poor countries fight global warming and cope with rising sea levels (Zaragoza, 2014). The UN has also oversee the establishment of the United Nations Sustainable Stock Exchange Initiative (UNSSEI) [with Nigerian Stock Exchange (NSE) as a member], to monitor corporation's compliance with environmental guidelines and standards. In a report by the BBC world service in June 2015, the G7 countries have resolved to eliminate the use of fossil fuels by the year 2100 (Butler, 2015). In fact, the Dutch High court in a landmark ruling orders the government to cut GHGs by one-fourth in 5-years. In the same vain, some environmentalist have called for the imposition of a Global Carbon Tax (GCT) to help fight against global warming (Marshall, 2015).

The issue of sustainability came to an all-time high in the recently concluded Paris Climate Summit which was hosted by the French government and chaired by the French Foreign Minister, Laurent Fabius (Montgomery, 2015). Foreign Ministers of about 195 countries agreed on the deal after almost two weeks of intense negotiations. At the opening ceremony, the then US President (Barrack Obama) and Bill Gate pledge to double research in green energy investment. Major players like the US, China, India, and Saudi Arabia all signed up to the deal. According to the French, the “deal” which was ambitious, fair, and balance represents a historic turning point in climate change. The major aims and provisions of the deal were to:

1. Limit temperature rise to 1.5<sup>0</sup>C.
2. Limit warming to 2<sup>0</sup>C.
3. Be legally binding.
4. Work at low carbon emissions.



5. Provide finance for the poorest developing nations to the tune of \$100 billion per annum.

These aims notwithstanding, Nick Dearden of Global Justice Now (GJN) criticised the deal for having almost nothing binding (BBC, 2015).

However, developing economies have done very little to check environmental degradation (Alabi & Ntukekpo, 2012). Studies have shown that seven out of the 10 least healthy environments exist in Africa. On a scale of 100, Beaudry (2014) gave some African countries (Somalia, Mali, Lesotho, Sierra Leone, Liberia, Sudan and Democratic Republic of Congo) an average score of 21.37 on international health standards. This figure puts them among the least ten international healthy environments. Ndamba (2012), on his part suggested that it is only recently that Zimbabwe recognized that public sector have a role and responsibility in “environmental sustainability and climate change”. Similarly, a study by Chown (2001) concluded that whilst the forestry, paper and pulp industries in South Africa contributes substantially to the economy; there is the lack of accountability and acknowledgement by the industry of the negative impact on the environment. Moreover, some human activities in Africa according to Kasum (2010), leaves the eco-system worse-off and the beneficiaries of these activities usually ignore the problem.

Although Africa’s most populous country Nigeria is mono-economic based, with oil revenue from the Niger Delta region accounting for about 95% of foreign exchange and between 85%-95% federal government’s revenue (Alabi & Ntukekpo, 2012; Ayoola & Olasanmi, 2013). A critical look at the Nigerian environment shows that human activities have drastically altered it from its original form. In the northern

part of the country drought and desert encroachment are the major environmental concerns, while gully and coastal erosion are posing serious threat to human existence in the southern part (Haggins & Frames, 2011). Furthermore, municipal waste management and petroleum prospecting in the Niger Delta make up for the biggest environmental challenges in the country as a whole (Haggins & Frames, 2011). In the middle-belt region of the country, the effects of climate change have had serious consequences on the vegetation spread with the savannah grassland in the north-central parts of the country being reduced to shrubs. Another big encouragement to environmental problems is the teeming population of the North which forms 75% of Nigeria. The rapid increasing population has put more pressure on the limited resources available and breeds extreme poverty. Due to the high rate of poverty, most families depend on firewood as their main source of domestic energy for daily use. This has led to so much tree-felling that has greatly aided in deforestation. Also looking at it from the agricultural perspective, the high population has made shifting cultivation and crop rotation impossible as most farmers concentrate on economic crops thereby exposing the soil to leaching and depleting its nutrients and minerals; hence the heavy dependence on inorganic fertilizers. This heavy dependence on modern fertilizers with its associated environmental impact can also not be ruled out as a major environmental pollutant. This has led to serious soil contamination which has affected the environment.

The manufacturing of goods also has its own environmental degradation effects. Polymers and plastic manufacturers are major contributors to environmental pollution in Nigeria. Their products could be seen littered all around the place. This impact of small and medium scale enterprises on the environment can be felt throughout the country. Of particular reference and significance is the so-called “Pure

Water” industry. This industry specializes in producing cheap drinkable table water. The plastic waste from their product can be seen littered all around town causing serious environmental problems. They block drainages and are easily transported by wind to far distances during which they may inconvenience pedestrians, passers-by and even motorists. Meanwhile the tanning, chemical and other industries are known for the improper disposal of their wastes, leading to air and water pollution affecting local communities. Researches in the non-oil and gas sector have shown very low disclosure of sustainability information and the use of qualitative reports (Hossain, Islam & Andrew, 2006; Othman & Ameer, 2010; Sumiani, Haslinda & Lehman, 2007).

When it comes to the petroleum sector, the actions of companies in this industry are of paramount concern to all stakeholders as it leaves behind vast amount of environmental problems (Enahoro, 2009; Otio, 2012). This could make the Niger Delta region according to Vidal (2010), loss well over 40% of its inhabitant terrain in the next three decades. Since the discovery of oil in Nigeria in 1956, Anyanwu (2012) stated that an estimated 10 million barrels of oil have been spilled. By 2012, about 1.5 million tons of oil has been spilled into the ecosystem (Kadafa, 2012).

It is also estimated that about 45.8 billion kilo watts of heat generated from 1.8 billion ft<sup>3</sup> of gas is release into the air every day in the Niger Delta area leading to high temperatures. In addition to this, about 84.6% of gas produced is flared. In fact, Vidal (2010) puts gas flare in Nigeria to about 3.5 billion ft<sup>3</sup> annually. This has seriously affected local communities who have in turn adopted unlawful means of making their voices heard (Amaize, 2016). For this reason representatives of oil producing areas have always hold their counterparts from other parts of the country to

ransom on national issues by clamouring for increase share in revenues generated from their areas (sometimes as high as 50% allocation) to their region (Kadafa, 2012). Even the State-owned NNPC is not immune from causing environmental degradation.

Based on the above disastrous consequences of pollution, the motivation of this thesis could be attributed in the first place to the fact that the oil & gas and industrial goods sectors are the heartbeat of the nation's economy with total capitalization of ₦2.1299 trillion (US\$ 0.0111 trillion), equivalent to 32.29% of total capitalization of listed companies (Appendix A). The Petroleum industry alone accounts for between 85%-95% of foreign exchange and federal government revenue. The issue at stake is that the south-south geo-political zone of the country, which is endowed with large deposits of petroleum resources, suffers the brunt of oil pollution, while most of the exploiters are either multinationals corporations or businesspersons from other parts of the federation. The role of the oil industry for now is so critical that the future and stability of the country hangs on it.

In addition, the non-oil and gas sector has always been investigated concurrently with other non-environmentally sensitive sectors thus overshadowing their environmental pollution relevance. Moreover, the dominant methodology being applied on the non-oil and gas sector has been conceptual analysis of literature and qualitative reporting. Furthermore, past studies have laid emphasis on individual or single set of determinant elements like profitability, leverage, firm size, firm age, effective tax rate, audit firm, etc. This research emphasises on determinants categorized into variables which consists of environmental policy administrators, corporate financial performance, board characteristics, and corporate foreign ownership concentration.

Another motivating factor is the way environmental policy administrators like Department of Petroleum Resources (DPR), National Environmental Standards and Regulations Enforcement Agency (NESREA), and the NSE as a new member of the UNSSEI, intends to encourage environmentally sensitive industries not only to honour international treaties on sustainability issues; but to also comply with the Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN), National Environmental Standards and Regulations Enforcement Agency (NESREA) Act, and other internationally recognized sustainability guidelines and standards.

The research is also motivated by the need to search for an administrative way out of the economic and social discontent caused by environmental pollution and which have become major political issues, with herdsmen clashes in the north and militants destructive acts in the south (Ogundipe, 2016; Amaize, 2016). The researcher therefore, intends to use this research to provide appropriate recommendations to some of the basic economic, social and political questions that has engulf the Nigerian economy due to environmental damages. The economic gains of environmentally sensitive industries in Nigeria is measured in this research against the background of sustainability reporting or sustainability information disclosure using third-party verification for transparency (Alabi & Ntukekpo 2012; Ball, Owen & Gray, 2001). Comparison was made between the economic performance of these companies and the level of sustainable development embarks upon by them through sustainability information disclosure. It is hoped that this may help heal the wounds of years of abandonment claimed by inhabitants of environmentally affected communities. Consequently, this work may help bring to an end the economic and social discontents that are major political issues and threatened the country's unity,

stability, and existence as a single entity. To this effect the Petroleum Industry Bill (PIB), which came into effect on May 2015, has as its main objectives transparency, accountability and responsibility. This according Abiodun (2015) is to encourage sustainable development and reduction in corruption that is rampant in the Petroleum industry.

## **1.2 Problem Statement**

Sustainability issues are now of high priority in developed economies, where as in developing countries like Nigeria there are hardly any concrete measures in place to combat or mitigate them even though the fact remains that there are some significant sustainability issues at stake in the country in relation to community development (Alabi & Ntukekpo, 2012), and environmental friendly policies (Asuquo, 2012 & Haggins & Frames, 2011). Other issues are environmental degradation through oil pollution (Anyanwu, 2012; Kadafa, 2012; Kasum, 2010; Otiotio, 2012; Vidal, 2010), and integrated reporting (Ayoola & Olasanmi; Enahoro, 2009). These studies have shown the adverse social, economic and to a greater extent political effects of environmental problems in Nigeria.

The issue of the environment touches all six geo-political zones of the country. In northern Nigeria, which is mainly agrarian, the vegetation is threatened by drought and desert encroachment. According to World Bank (2010) indicators, agriculture (crop production and animal husbandry) accounts for about 51.4% of employment nationwide, and in rural areas in the north, the figure is even higher (Trading Economics, 2015). In eleven northern states inhabiting an area covering 43.3% of the total land area of Nigeria, desertification is visible. Between 55%-65% of these

eleven states is under environmental siege (Mohammed, 2015). A situation according to Mohammed (2015), which threatens food security as both agrarian and pastoral farmers have been deprived of farmlands by sand dunes, shortage in water supply and low income. In addition, most farmers have abandoned their profession for other income-earning activities in the cities - legal and/or illegal (Mohammed, 2015).

Moreover, desertification has increase pressure on Fulani herdsmen to fend for their cattle. The situation in the northern part of Nigeria is such that the agricultural sector which accounts for majority of employment is mainly subsistence and localized. This sector is broadly divided between Fulani herdsmen (cattle rearing) and non-Fulani farmers who are mainly crop producers. Furthermore, the Fulani herdsmen are predominantly Muslims while the non-Fulani farmers belongs to Christianity and other faiths. Drought and desert encroachment has forced Fulani herdsmen to move southwards in search of greener pastures and water for their cattle. Such movements to the conducive south often led to damages on farmlands and crops, thus putting Fulani herdsmen in direct confrontation with farmers. This has led to communal clashes between Fulani herdsmen and farmers in most parts of the Middle Belt and southern regions of the country (Ogundipe, 2016). As majority of Fulani are Muslims, clashes with non-Fulani of other faiths (especially Christianity) are given religious connotations. Thus a battle between Muslims and Christians emerges which, has a national outlook. Consequently, the nation will be split between Muslims and Christians thereby threatening national peace and security. These resultant clashes have led to loss of lives and properties such as the skirmishes in Taraba state and other parts of the middle belt (Nomjov, 2015; Ogundipe, 2016).

In the southern part where the economic heart of the nation lies, the environment is exposed to soil erosions on the one hand and land, air and sea

pollutions from Petroleum mining activities on the other. As previously mentioned, petroleum accounts for over 90% of foreign exchange and federal government revenue (Alabi & Ntukekpo, 2012; Ayoola & Olasanmi, 2013). However, environmental problems put most of the labour force in the area out of employment as land is being seriously destroyed and degraded through contamination from petroleum exploitation and mining operations. The major environmental issue at stake here is that being the economic basket of the nation, the inhabitants of the Niger Delta suffers the brunt of the oil spillage while beneficiaries of the oil wealth are multinational corporations and other non-resident investors in the petroleum industry. This has led to serious political back-clash with inhabitants forming anti-social groups like the Ijaw Youth Council (IYC), Niger Delta People Salvation Front (NDPSF), Movement for the Emancipation of the Niger Delta (MEND), Niger Delta People's Volunteer Force (NDPVF) headed by the renowned ex-warlord Alhaji Mujahid Asari-Dokubo, Movement for the Actualization of the Sovereign State of Biafra (MASSOB) and the newly formed and dreaded Niger Delta Avengers (NDA), etc. (NAIJ.com, 2015; Oduah, 2015; Amaize, 2016). These associations were formed by inhabitants of the south-south and southeast regions to resist exploitation of their resources with calls for secession, and to counter the imposition of federal authority in the region. This situation does not auger well for the security and unity of the country because whenever the security forces intervene, the locals turned their annoyances on innocent non-locals residing in the area and this in turn prompt retaliatory attacks in other parts of the country (Ikelegbe, 2005; theguardian, 2013).

In consideration of environmental problems, the Nigerian government established the Department of Petroleum Resources (DPR) and National Environmental Standards and Regulations Agency (NESREA) to supervise and



enable companies and business organizations to disclose voluntarily their activities in relation to sustainability issues especially for sensitive industries. Furthermore, these agencies provides standards and regulations that guides against social and environmental abuse by firms. By imposing these regulations, it was hoped that companies will disclose voluntarily all activities and operations to mitigate these problems. Besides, it could make it possible for business organizations to not only abide by laid down standards, but also consider the importance of their operations on the host community by allocating sufficient funds to handle environmental and social issues.

Concisely, studies on sustainability disclosures in Nigeria covers the reports of just few multinationals especially those in joint venture with the NNPC. The majority of them were based on primary data as against disclosures in financial reports. In researches where both primary and secondary data were used such as that of Enahoro (2009), little emphasis was placed on annual financial statements. Another important feature is that apart from measuring the degree and direction of relationships hardly any of these studies tried to relate disclosure by firms as an answer to the major economic, social and political problems resulting from sustainability issues.

Apart from Enahoro (2009), whose research covers the oil and gas and the manufacturing sectors only, environmental reports on Nigeria have been dominated by the oil and gas sector only. The non-oil and gas environmentally sensitive sector is not politically sensitive as such whenever they are investigated they are treated under the economy as a whole. Therefore, their significance is hardly felt. Again, studies by Hossain, Islam and Andrew (2006), Othman and Ameer (2010) and Sumiani, Haslinda and Lehman (2007), on sustainability disclosure showed low level of disclosure of sustainability information. These disclosures were mostly qualitative in

nature and their assessments were made through conceptual analysis. In most countries the agricultural, construction, real estate, manufacturing and other non-oil sectors are responsible for environmental problems like flooding, damages to external cover, wind-related structural damages, decrease durability, subsidence, pressure on water resources, etc. (Glass, 2012; Khalid Md. Bahauddin, 2012).

It is therefore worth stating that attempt would be made in this research of sustainability information disclosure in Nigeria by environmentally sensitive firms, to focussed exclusively on sectors not limited only to manufacturing and oil and gas, but all environmentally sensitive sectors of the Nigerian economy. Based on this, this work not only engaged in investigating sustainability disclosure matters, but also broadened our scope to making invaluable recommendations to Nigeria's social, economic, environmental and political challenges resulting from sustainability issues disclosed. The research also intends to contribute to the discovery of strategies in tackling sustainability problems in Nigeria through disclosure by environmentally sensitive firms in the economy. Unlike past researches that have laid so much emphasis on individual variables like profitability, firms size, audit firm, financial leverage, effective tax rate, etc.; this research extends the independent variables to four (4) groups and combined secondary data with indicators of the latest version of Global Reporting Initiative (GRI-4 or - G4).

Today in developed economies sustainability issues have taken a new dimension emphasizing more on mandatory disclosure, institutional supervision and investments. In United States, the US Stock Exchange plays a very important role in ensuring sustainability disclosure compliance. Investors in developed economies are divesting to environmentally friendly companies (Volconici, 2014). Capital being the lifeline of every business, it is therefore worthwhile to win the confidence of investors

(Barde, 2009). In Nigeria, three institutions (NESREA, DPR, and now NSE) have direct role to play in corporate sustainability reporting. For this reason, firms must take seriously, both the role of pressure from institutions external to the business and their capital needs. Sustainability reporting by companies is now one such tool that can be used to win over investor's confidence and create employment for the teeming population to prevent social vices.

With modern development in divestment from fossil to green investments, the establishment of the UNSSEI which makes it possible for stock exchanges around the world to enforce sustainability standards, and with the signing of the Paris Climate Deal; the institutional theory and capital need theory proved more relevant for this research (Volconici, 2014). The institutional theory considers the role of environmental supervisory and monitoring organizations in the country, while capital need theory has the advantage of attracting more foreign investment with its associated benefits of low cost of capital, increased employment, foreign exchange, modern technological transfer, high GDP, foreign expatriates, etc.

Issues highlighted above have seem to suggest the magnitude of security and economic challenges that sustainability problems posed to the Nigerian society as a whole, the major source of revenue for the federal government, food security, poverty and the existence of Nigeria as a single state. Hence, this research attempts to examine how determinants such as environmental policy administrators, corporate performance, board characteristics, and corporate foreign ownership concentration might influence sustainability accounting disclosures in relation to sustainability issues in Nigeria.

### **1.3 Research Questions**

Based on the research problems the following questions were developed as a guide to the assertions of this research.

1. What is the behaviour of the nature and trend of sustainability disclosure among environmentally sensitive industries in Nigerian?
2. To what extent is the effectiveness of environmental policy administrators in enforcing and monitoring compliance with environmental standards and guidelines for environmentally sensitive firms in Nigeria in order to alleviate or curb environmentally related problems?
3. By what degree does environmental policy administrators, corporate financial performance, board characteristics and corporate foreign ownership concentration; individually and/or collectively influence sustainability disclosure by environmentally sensitive firms in Nigeria?

### **1.4 Research Objectives**

Almost all the major economic indicators of the country are negative, from inflation to employment, interest rate, exchange rate, income distribution, per-capita income, down to social and economic structures (Adegbaaju & Olokoyo, 2008). Revenue from oil provides the major source of income to the federal government. The producers of oil however, do so at very high social and environmental costs. Modern accountability demands stand-alone social/environmental reports (Ayoola & Olasanmi, 2013). It is therefore, worthwhile to look at the relationship, which exists between sustainability reporting and the enforcement of environmental rules, regulations, guidelines and standards by government agencies in relation to companies' performance, board characteristics, foreign ownership concentration and sustainability reporting by environmentally sensitive firms in Nigeria.

Specifically this thesis is aimed at identifying the extent of sustainability disclosure by environmentally sensitive firms in Nigeria by assessing the role of environmental monitoring organizations (DPR, NESREA, and NSE). Other broader objectives shaped along this line include:

1. To examine and assess the nature and trend of sustainability disclosure by environmentally sensitive firms in Nigeria.
2. To indicate the effectiveness of environmental policy administrators in the supervision and monitoring of compliance with sustainability rules, regulations, standards and guidelines.
3. To determine the relationships between sustainability information disclosure and its determinants (environmental policy administrators, corporate performance, board characteristics and foreign ownership concentration) in environmentally sensitive firms in Nigeria.

The nature and trend entails an evaluation of the level of sustainability disclosure on industrial basis, the behavioural pattern of sustainability over the periods under observation and changes with regards to increase or decrease in sustainability information disclosure rates. On the other hand, effectiveness of environmental policy administrators measures results on sustainability disclosure compliance. The relationships between sustainability disclosure and its determinants is based on the separate and overall impacts of the determinants on sustainability reporting by environmentally sensitive firms. Furthermore, it includes individual and overall significance of the relationship between the determinants and sustainability reporting, and the direct or inverse effects of the determinants on sustainability reporting by environmentally sensitive firms in Nigeria.

## 1.5 Scope of the Research

Sustainability (nonfinancial) reporting has been broadly classified into economic, environmental and social reporting by the G4 sustainability guidelines and standards. The Triple Bottom Line (TBL) reporting as recommended by GRI and ISO26000 is made up of three aspects: economic, social, and environmental reporting dealing with profit, people, and planet respectively. This research intends to cover the general, economic, environmental and social aspects of nonfinancial reporting of environmentally sensitive firms in Nigeria. Furthermore, emphasis is laid on the environmental and social aspects of reporting by the environmentally sensitive sectors of the Nigerian economy.

The recently introduced Petroleum Industry Bill (PIB) in Nigeria divides oil & gas production in the industry into upstream, midstream, and downstream (Otiotio, 2012). While the mid and down streams deals mainly with transportation of crude materials, processing, distribution and marketing of oil & gas products, the upstream is concerned with exploration and mining. There are firms that provide support services like engineering, communication, electricity, insurance, safety, etc. to companies in the industry. Except for those firms whose operations have direct impact on the environment, others were not considered as petroleum companies for the purpose of this research. Moreover, the fact that the oil & gas industry forms the heartbeat of the Nigerian economy means more petroleum companies are covered by this research. Therefore, in addition to the 10 companies quoted in the NSE from the oil & gas sector, more were added to increase the total population of oil & gas firms in the research. The researcher ensured that the added firms published their

annual reports on the internet/website. Petroleum companies covered were mainly those engaged in exploration and mining activities.

There are around 218 companies in the 13 sectors listed in the NSE (Table 3.2 & Appendix A). These sectors have been classified into two for the purpose of this research based on the impact their operations, emissions, effluents and wastes have on the environment (Enahoro, 2009). These are environmentally sensitive and non-environmentally sensitive sectors or environmentally non-sensitive sectors. Of the 13 sectors listed in the NSE, six were regarded as environmentally sensitive using our criteria above while four as non-environmentally sensitive with the exclusion of the financial sector comprising three industries: Financial Services, Memorandum Quotations (Utility) and Alternative Security Market (ASeM). This research therefore, concentrated on the six environmentally sensitive sectors namely: agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil & gas industries. Thus, the scope of the research covered these six sectors and the six-year period from 2009 to 2014.

Sustainability standards in Nigeria became operative around the year 2000 but because of its voluntary nature, most companies are yet to comply fully with existing guidelines and standards. For this reason, only the latest data was considered. Specifically, the period 2009 to 2014 from published financial statements (annual financial reports, stand-alone sustainability, social responsibility reports, website reports, or environmental reports) for the six environmentally sensitive sectors listed on the NSE and/or operating in Nigeria were used for this research as the main source of primary data. As previously mentioned, this research laid more emphasis on the sustainability aspects of reporting. The only limitation that the research considers most important is the fact that unlike DPR and NESREA, the NSE is new in

sustainability monitoring and supervision process. Being a recent member of the UNSSEI in effect puts a limit to it.

## **1.6 Significance of the Research**

Specifically, the importance of this research can be classified into three broad categories; these are the theoretical contribution, the practical contribution, and other contributions. From the theoretical perspective, the research principally targets the impact of environmental monitoring bodies in Nigeria's environmentally sensitive sector on firms' environmental reporting. Thus, the relationship between environmental policy administrators and environmental disclosure was evaluated. Emphasis was also laid on environmentally sensitive firms in the economy to avoid adulteration by non-environmentally sensitive firms on the result. This research also gives policy administrators the opportunity to look back at what has been achieved and use it as a platform for future planning.

The research also shows overwhelming assessment of environmental reporting from a modern perspective using variables and theories that reflect modern development and the new dimensions that environmental issues have taken globally. Much importance was attached to modern underpinning theories, standards and guidelines, and standard definition of the independent variables. Thus, the underpinning theory of this research work is the institutional theory. Moreover, other theories like the capital need theory, stakeholders theory and legitimacy theory were also applied.

The most important practical contribution is providing a recommendation to the major socio-political issue on the ground in Nigeria at present. Desert encroachment and drought in the northern parts of the country is forcing Fulani



herdsmen to move down south with their cattle for greener pastures. This move brings them into direct confrontation with farmers (Nomjov, 2015; Ogundipe, 2016). Another major practical significance of this research is to provide appropriate recommendations to the federal government of Nigeria on the supervisory role of DPR, to review the overall environmental policies and build solid foundation for peace and stability to reign in the Niger Delta, and the entire country. Thus, a peaceful, diplomatic and administrative means of resolving the Niger Delta conflict would be initiated.

Other Contributions of this research are that it will be of immense benefit for government planning purposes. The federal environmental agencies (DPR and NESREA), state environmental agencies, and Ministries for the Environment, Budget and Planning, etc. could use this report to improve government plans for sustainability developmental purposes especially in the Middle Belt and the Niger Delta areas. Furthermore, environmentalists could also benefit from the research findings by obtaining information on the corporate performance of environmentally sensitive companies. The extent of their efforts in mitigating and claiming compensation for damages caused by the operations of these firms on the environment will be made easy. The findings of the research may also greatly assist stakeholders like immediate local and host communities, shareholders, creditors (financial institutions), government agencies, employees, and non-governmental agencies popularly known as NGOs.

## **1.7 Definition of Key Terms**

### **1.7.1 Environmentally Sensitive Firms**

These are firms, which generally affect adversely more on the environment through effluents and emissions from their operations to cause degradation (Enahoro, 2009). In other words, they are firms with high environmental pollution propensity (Monteiro & Aibar-Guzman, 2010). Moreover Kolk, Walhain and van de Wateringen (2001) described them as firms that are found in “sectors with a substantial direct environmental impact”, such as chemicals, pharmaceuticals, oil & gas, motor vehicles and parts, etc.

### **1.7.2 Non-Environmentally Sensitive or Environmentally Non-sensitive Firms**

They are firms with no or very little negative effect on the environment through their operations and emissions. The propensity of pollution from them is either nil or minimal. Examples of such firms include service firms like insurance companies, investor firms, banking, ICT services, advertising agencies, etc.

### **1.7.3 Environmental Policy Administrators**

These are government or private environmental or sustainability agencies charged with the responsibility of providing, enforcing, supervising and monitoring sustainability rules, regulations, standards and guidelines for both individuals and business organizations operating in a country. In Nigeria, they include DPR (oil & gas industry), NESREA (non-oil & gas sector), and recently NSE (listed firms).

## **1.8 Organization of the Thesis Chapters**

The research is organized into five sections arranged in Chapters. The first Chapter is a general review of the historical background of the subject matter highlighting the major problems, questions, aims of the research and the definition of key concepts of the research (e.g. environmental sensitivity, environmental policy

administrators, etc.). The areas covered by the research in terms of period and spread were also discussed in the first Chapter. The second Chapter explains major concepts of the research and gives a critical review of related literature of the research. Chapter Three elaborates on the research framework, hypotheses development and research design defining the population, sample size and the techniques of data analysis. Analysis of data and findings of the research were discussed in Chapter Four. Chapter Five presents the key findings, significance, implications and recommendations of the research based on the objectives of this research.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 The Development of Sustainability Reporting

Sustainability reporting (sustainability information disclosure) was a little known concepts until the emergence of Corporate Governance (CG). Friedman (1970) as cited in Rahman, Hashim and Abubakar (2010), is generally agreed to have been the originator of the relationship between business and society. He was of the conviction that businesses should take social responsibility for the high profits they make thus striking a cord on Corporate Social Responsibility (CSR). Rahman *et al.*, (2010) went further to view CSR as being about the effects of businesses' operations on the environment and society. For this reason, businesses should not target only economic returns but should carry out their activities in a responsible manner. According to Holt (2004), CSR is all about reporting a company's activities to stakeholders. The report must encompass the policies and practices of a corporate body in relation to issues of human rights, community development and environmental degradation and reclamation. Mbat, Ibok, Daniel, and Campus (2013) agreed that CSR "is a form of corporate self-regulation integrated into a business model".

From the above discussions, CSR could be coined into three phenomenon. In the first place, it is about businesses taking responsibility for their actions, which also entails accountability. Secondly, there is the issue of corporate governance, which CSR emphasizes. Corporate bodies should entrenched in their corporate policies matters of concern to society, host community and the natural habitat. Finally and most importantly, companies should not wait for nor be forced into taking

responsibility or inculcate social and environmental policies in their programs. They should instead be philanthropists and voluntarily behave in a responsible manner (Rahman *et al.*, 2010). Strictly speaking, CSR aimed at forcing businesses to take responsibility for their actions. Positive response by companies enables them to favourably impact on their environment and all stakeholders. Mbat *et al.* (2013), said commitment to ethical behaviour, and the contribution to economic development, quality workforce and the community is a basic function of CSR.

On the technical side CSR is a new management strategy, which enables companies to impact positively on environmental, social, and communal forces (Mbat *et al.*, 2013). For this reason, CSR is seen as common sense attribute, which could not be restricted to businesses alone but also extends to individuals, governments, and even non-profit making organizations whose activities in a community could lead to disequilibrium in the ecosystem (Rahaman *et al.*, 2010).

Kornblum and Julian (1992) are of the opinion that when a community is forced to be drawn to the conclusion that their lives and values are under threat from a foreign party, it is the duty of the foreign party to impact positively on such a community and avoid a drastic erosion, depletion or exploitation of whatever they considered threatened. It is a matter of must for businesses to be in close contact with customers for them to be able to uphold the going-concern concept (Gbadeyan, 2003). In another vein, Kasum (2010) is of the view that CSR is justified on the grounds of full depletion of a community's environment through the operations of corporate bodies. Secondly there must be compensation for the "acceptance, accommodation and patronage" of communities by companies (Kasum, 2010).

Notwithstanding the fact that it is more important to give priority to matters of environmental concern, most companies however prefer to settle instead for donations to social amenities, which is a cheaper and easier option (Kasum, 2010). The communication of social and sustainability information to stakeholders will expose such practices. Therefore, reporting on sustainability issues may not only expose wrong practices by companies but also seriously affect firms' customer patronage of their products and impact negatively on their economic and financial performances.

## **2.2 The Concept of Sustainability Reporting**

Sustainability reporting or sustainability accounting otherwise known as social accounting, corporate social reporting, corporate social responsibility, nonfinancial reporting or sustainability accounting (Gray, Owen & Maunders, 1987; Japan Ministry of the Environment, 2004; Othman & Ameer, 2009); is the process of communicating the social and environmental effects of organizations' economic actions to particular interest groups within society and to society at large (Gray, 2001; Gray *et al.*, 1987; Japan Ministry for the Environment, 2004). As the recognition and concern, for the environment grows, companies have become willing to disclose to stakeholders information on social and environmental matters to the extent that separate nonfinancial reports are now issued (Beets & Souther, 1999). Such reports are called environmental, sustainability, or social reports depending on the aim, content, or reporting organization. Prior to the introduction of sustainability reporting standards these reports differs significantly from company-to-company thereby making comparability very difficult and complex.

Branco and Rodrigues (2007) agreed with Gray, Owen and Adams (1996), that social and sustainability reporting is “the disclosure of information about companies’ interaction with society”. In many countries, sustainability issues are of great concern to most organizations. Beets and Souther (1999) puts the overall environmental liability in the US to between 2% and 5% of GDP. In fact, sustainability issues have attained such heights in the US to extent that corporate officers are now personally prosecuted for environmental offences whether or not they personally violate the law (McMahon, 1995). Given the integrated dimension of nonfinancial reporting, most scholars prefer the terms “social and sustainability accounting and reporting (SEAR)” to refer to social, environmental or sustainability reporting (Contrafatto, 2011). In his state of the art review of the concept, Contrafatto (2011), defined SEAR as a “self-reporting process through which quantitative and qualitative information about social and environmental effects are accounted and disclosed”. Over the years, most countries and governments have recognized the significance of sustainability reporting and have moved from voluntary to mandatory in most developed countries (Volconici, 2014). Legislations, standards, guidelines and even treaties such as the Kyoto Protocol and the Paris Climate Deal have sprang up thus giving legal, moral and ethical bases or backings to sustainability reporting. It is important to note that information disclosed on environmental reports could either be qualitative or quantitative or both (Contrafatto, 2011). SEAR has now moved from fringe activities to credible and serious ethical practices recognized by multinationals such as the Global Fortune500.

Firoz and Ansari (2010) used the term “environmental financial reporting” which they claim concerns the presentation of financial and nonfinancial sustainability information. Environmental financial statements may appear similar

but may vary due to a country's social, economic, and legal differences (Firoz & Ansari, 2010). Although this definition emphasizes on environmental "financial reporting", it is very limited in scope. According to Fortes (2002), the metamorphosis of responsible use of natural resources into major socio-political issue paved the way for the development of sustainability reporting into an important business decision-making factor which, insists on the inclusion of environmental costs as part of accounting information. In the light of this, sustainability reporting implies a commitment to sustainability issues (Fortes, 2002).

In the context of corporate social and environmental reporting (CSER) Haider (2010), referred to sustainability reporting as being made up of information relating to a company's operations, aspirations and public image with regards to the environment and important stakeholders (community, employees and customers). This definition though precise did not specify whether economic or non-economic information relating to corporate activity is what is needed. The underlying feature of it however, is that it is explicit about the type of information needed: environmental, and the most important parties on this information are the immediate community, employees, and customers.

Corporate social environmental disclosure (CSED) according to Gray (2001) is the process of communicating the social and environmental effects of organizations' economic activities to the society (Ismail & Ibrahim, 2008). It encompasses providing financial and nonfinancial information relating to an organization's relationship with their immediate physical and social environment as indicated in annual financial reports or stand-alone nonfinancial reports (Guthrie & Mathews, 1985). Apart from Environmental Impact Assessment (EIA), corporations are expected to disclose in their financial statements or nonfinancial statements results



of their operations on social and environmental matters. Thus informing and educating stakeholders on the impact of firm's performance both in terms of economic and operational. Stakeholders need to know (if any) what actions have been taken in respect of any social or environmental disequilibrium caused by the activities of companies.

Japan's Ministry for the Environment (2004), referred to sustainability reporting as promoting communication of organizations to fulfil their accountability in relation to environmental matters in their activities and put forward useful information to decision-makers and interested parties. Such efforts as stated by the Japan Ministry for the Environment (2004), includes environmental or social policies, objectives, programs, structures, and systems for environmental activities in line with social and sustainability reporting standards. Sustainability reporting has also been seen as the release of environmental performance information to the public (Othman & Ameer, 2009).

Pramanic, Shil and Das (2008) defined sustainability reporting as "the identification, measurement and allocation of sustainability reporting costs, and the integration of these costs into business and encompasses the way of communicating such information to the companies' stakeholders". This definition portrays the concept of sustainability reporting as an umbrella term comprising four basic elements (Pramanic *et al.*, 2008).

- a. Identification of environmental expenditure (costs or expenses).
- b. Capitalization or investment of the expenditure.
- c. Identification of sustainability reporting liabilities.
- d. Measurement of these liabilities.

However, the treatment of these problems depend heavily on organizational guidelines like that of the Financial Accounting Standards Board (FASB) now Financial Reporting Council of Nigeria (FRCN) , Institute of Chartered Accountants of England and Wales, Accounting Advisory Firm, etc. (Pramanic *et al.*, 2008; Premium Times, 2017). Effectively, sustainability reporting covers all areas of accounting that is affected by corporate response to sustainability reporting issues.

Rahman *et al.*, (2010) shared Holt's (2004) opinion of sustainability reporting as "a matter of reporting the impact of corporations activities on a range of stakeholders ..." It is a general focus on issues like corporate policies, practices, human rights, environmental impact, community development, and sustainability. Sustainability reporting could be nonfinancial (i.e. either descriptive, pictorial or physical or all combined).

### **2.3 Objectives of Sustainability Reporting**

Reporting on sustainability matters is not just for formality as most sustainability issues have social and political implications. Basically, the aim in reporting is to eradicate or alleviate these issues. According to Pramanic *et al.* (2008), some of the major objectives of sustainability accounting are discussed below.

- a. Stakeholders and society need to know about what is being reported on the environment and the extent of materials covered by the environmental report of a firm. This is only enhanced through sustainability reporting. Firm's needs to follow laid down rules, regulation, and guidelines if a comprehensive report is to be presented. This will increase sustainability reporting transparency.

- b. Another objective of sustainability reporting is to determine an organizations' relationship with stakeholders. All stakeholders to a firm are in need of various information. Until firms disseminate these information to concern parties, the relationship with the organization will be anything but good. As a matter of fact it is through sustainability reporting (especially mega or TBL reporting) that local communities in particular would get a true picture of the level of degradation or otherwise of their environment.
- c. Reporting on the environment greatly helps in attracting foreign investors. It is true that sustainability issues are given priority in developed countries to the extent that they have become major political issues with "Green" policies forming major components of the manifestoes of some political parties like the Green and the Liberals in the UK and the Democrats in the US (OnTheIssues, 2012). In recent years, investors like the Rockefeller foundation and Bill Gate have openly come out in favour of green investment (Volconici, 2014; BBC World News, 2015). Companies need to attract environmental customers, avoid powerful environmental lobbyist and boost their image; thus taking "competitive marketing" advantage. Reporting on sustainability issues goes a long way in achieving this.

#### **2.4 Advantages of Sustainability Reporting**

Among the several factors that may necessitate the need for sustainability reporting standards and verification, is the fact that today investments are selected based on ethical, environmental, and political criteria (Beets & Souther, 1999; Gray, 2007; Ienciu, 2012). The availability of verified reports based on standards gives guarantee of comprehension, accuracy and reliability. Such reports might have

undergone proper scrutiny and therefore, brings assurance and credibility to it. This is very important when environmentally sensitive companies are considered. The fact that assurance is given by experts in addition to professional accountants' endorsement makes such reports reliable (Beets & Souther, 1999).

Sustainability reporting standards and verification also provides protection against litigation and actions either by stakeholders' or regulatory bodies on misrepresentation in environmental reports. It should be noted that some of the consequences of environmental reports are impending. Beets and Souther (1999) posit that issues ranging from minor penalties to bankruptcy may result from sustainability reporting. Effective verification may however, prevent the disclosure of inaccurate, unrealizable, or misleading information. Some stakeholders may write off an environmental report as "green wash", more suitable for building companies images than for public consumption (Beets & Souther, 1999). That is why investors like the Rockefeller Foundation are concern with sustainability issues (Volconici, 2010) and their preference is to invest in businesses with environmentally favourable records or so-called "clean energy" firms.

Standards for sustainability reporting enable corporations to define their responsibilities and assist management in doing proper EIA. There is also the need for management to further assess their performance environmental wise in relation to companies within or outside the industry especially environmentally sensitive companies. The lack of environmental standards and verification may make this difficult if not impossible (Beets & Souther, 1999). Availability of environmental standards and verification aids in consistency. This may benefit investors and other stakeholders because extreme diversity and lack of comparability will not be a problem, thus making it easier for them to distinguish between environmentally

oriented companies and non-environmentally oriented companies. The danger of companies publishing “green glosses” (intentionally directed at enhancing companies’ image), is greater when standards are absent.

Verification is also necessary to determine the extent a report is expected to cover. Furthermore, the adequacy and necessity of reported environmental liability need to be verified. Sometimes companies ignore the risks being caused by their actions on host communities and embark on liabilities that do not address the needs of the community. For instance a business damaging the vegetation of a community that is dependent on agriculture for employment and later providing the community with boreholes instead of creating other means for sustaining their livelihood. That is why Beets & Souther (1999) insisted that standards are required to determine the proper disclosure of contaminated materials and hazardous wastes.

Environmental reports assists in determining the market value of business. In attempting a critique of Thornton’s (1993) views on sustainability accounting, Cho and Patten (2013) pointed out that the environmental cost must be higher for a firm that is considered environmentally harmful than for a firm that is not considered environmentally harmful, and this environmental performance will affect the market value of the firm.

It is suitable to also look at the significance of sustainability reporting from the ethical perspective. Sustainability reporting is the foundation for business ethics in the new millennium. Malarvizhi and Yadav (2009) and Othman and Ameer (2009) are of the opinion that sustainability reporting helps greatly in the evaluation of the cost-benefit effects of environmental measures of companies, and lays down

standards for the identification and reporting of sustainability information to support management's functions of decision-making and control.

In summary, the advantages of sustainability reporting are to identify, mitigate, and classify negative social and environmental effects of business operations in the application of nonfinancial accounting system and control to encourage environmental management decisions (Smith, Yahya & Amiruddin, 2007; Pramanic *et al.*, 2008). Sustainability reporting also helps in presenting new forces of performance measurement and resolves conflicts between conventional and nonconventional accounting. This may lead to competitive advantage which may benefit both customers and organizations through the development and operations of an efficient sustainability management system.

## **2.5 Challenges to Sustainability Reporting**

The biggest challenge to sustainability reporting is the absence of globally accepted environmental and verification standards. Several reporting standards exist as guidelines for reporting sustainability (Asaolu, Agboola, Ayoola & Salamu, 2011). In addition to this, there are also scarcity of professionals in verifying environmental reports as opposed to financial reporting (Beets & Souther, 1999). The Europeans have since 1993 established the Eco-Management and Audit Scheme (EMAS) described as a “regulatory plan intended to promote improvements in the environmental performance of companies”. EMAS emphasizes on companies environmental reports being verified by accredited EMAS verifier. To this effect, reports prepared under EMAS are likely to be credible and reliable than unverified reports.

Another serious challenge posed on sustainability reporting standards and verification according to Beets and Souther (1999), is related to increase in professional fees. It is however, suggested that this increase cost could be managed by adequate and efficient internal audit system; and positive public relations achieved by “being green”. Moreover, there is the fear of litigation and retaliation, which may be brought about by adverse public sentiment and regulatory reaction because of detrimental disclosure that were previously unknown.

Apart from verifications sustainability reporting faces the challenge of innovative approach in thinking and decision-making (Bluszczyk & Kijewska, 2015). This in essence means having managers who are creative and can use modern technology in implementing and reporting sustainability issues. The question of developing universally acceptable standards that covers all aspect of sustainable development is paramount in this case as the concept of sustainability itself is either improperly understood or has been misunderstood by some. This misunderstanding as pointed out by Burritt and Schaltegger (2010) makes evaluation and assessment of the concept to be flawed and simplistic. Hence, some question its chances of success and therefore, calls for its abandonment.

Of equal significance is the need to address the entity concept and concentrate on the composition of the biodiversity and the holistic effects of organizations as opposed to individual companies. While some schools of thought believes in the possibilities of incorporating sustainability considerations into the activities and actions of organizations, others doubted it (Burritt & Schaltegger).

## 2.6 The Concept of Sustainable Development

Sustainable development has a similar origin with environmental/sustainability reporting. Drexhage and Murphy (2010) stated that the concept evolved between 1972 and 1992 through international conferences and initiatives organized by the UN. The first international gathering that discusses the issue of “sustainability development” was the United Nations Conference on Human Environment in Stockholm in 1972, which led to the establishment of the WCED (Bartelmus, 2008). Recommendations from the conference saw the creation of National Environmental Protection Agencies (NEPA) worldwide.

Drexhage & Murphy (2010) stated that in 1980 a collaboration between the International Union for Conservation (IUC), World Wildlife Fund (WWF) and United Nations Environmental Program (UNEP) formed the World Conservation Strategy (WCS) which aimed at advancing sustainable development by pinpointing important conservation issues and major strategies to adopt. When in 1983 the UN convened the World Commission on Environment and Development (WCED), with the then Norwegian Prime Minister Gro Harlem Brundtland as Chairperson, the aim was to address the deteriorating human environment and its economic and social impacts. Representatives from both developed and under developed countries participated. The commission’s production of “Our Common Future” in 1987 brought out the most popularized definition of sustainable development (Drexhage & Murphy, 2010). The Report led to the 1992 Rio de Janeiro Summit in Brazil. The Rio de Janeiro declaration contained 27 principles of sustainable development. The seventh Principle of this declaration recognizes that states have common but differentiated responsibilities to global environmental degradation. Of most significant is Agenda 21 in which developed economies committed to contribute 0.7% of their national



income as official development assistance to developing countries on environmental degradation. Agenda 21's adoption led to the creation by the UN of the United Nations Commission on Sustainable Development (UNCSD).

Since the Rio conference, series of international conferences on the environment have been held, conferences like the Earth Summit in New York (1997) and World Summit on Sustainable Development in Johannesburg (2002). The Kyoto Protocol was also signed on 16<sup>th</sup> February 2005. The major hindrance to all these declarations has been implementation. As a result of this in his 2002 report the then UN Secretary General Kofi Anan, remarked "Progress towards reaching the goal set at Rio de Janeiro has been slower than anticipated" (Drexhage & Murphy, 2010).

The WCED popularly known as the Brundtland Commission in its 1987 Report defined Sustainable Development as "development that meets the needs of the present generation without compromising the ability of future generations to meet their needs". This definition entails integrating economic, social, and sustainability issues in the developmental process. The implication is that there should be intra and inter-generational equity of resource exploitation. The main aim of sustainable development is poverty eradication in the long-run (UN, 2012). Priority issues to attain this include growth, development, education, health, utilities, employment, natural resources exploitation, and climate change. The Brundtland Commission's definition of sustainable development can also be seen as a mode of human development in which resource use aims to meet human needs while ensuring the sustainability of natural systems and the environment so that the needs can be met not only in the present but also by future generations.

Sustainable development has also been regarded in some quarters as passing on to the future generation of stock of “capital” that is at least as big as the one our own generation inherited. This definition is perhaps the definition that is very closely related to one of the supporting theories of this research - the capital need theory. With strong capital in an economy, a nation is equipped with the means of not only building and replacing lost resources, but also reclaiming, mitigating and developing the environment to meet future needs. Corporate performance can assist greatly in adding to shareholders’ fund, which is part of the capital structure of a business organization.

According to Hosseini & Kaneko (2012) and Bluszcz & Kijewska (2015), there are three major pillars of sustainable development, which should be person-centred. The first pillar of sustainable development is economic development. This aims at creating social, political, and economic conditions that will enable each individual to attain full potential (Hosseini & Kaneko, 2012). The greatest resource of humanity is human capital. With human capital properly harnessed, it will form the basis for all other developments (economic, social, cultural, scientific, etc.).

The second pillar is social development, which is a prerequisite for a thriving economy and environment (Hosseini & Kaneko, 2012). The right to life which is the basic of all human rights is necessitated by access to clean water, sanitation, adequate healthcare, and reduction in maternal mortality – given the integral role women play in fostering development in the community. By ensuring the fundamental human needs, desires and rights of each person, a commitment to development may be made. Environmental protection is the third pillar and it is of high significance though it is the most neglected. The goals of development and environmental protection are mutually attainable through a person-centred approach. Each individual must

recognize his/her personal responsibility to be an effective steward of the natural environment.

## 2.7 Sustainability reporting Standards and Guidelines

The international recognition of sustainability reporting leaves behind a big gap, which centred on how organizations should report their sustainability information. This has led to the formation of many global sustainability-reporting organizations. The most common ones as listed by Othman and Ameer (2009) and Asaolu *et al.* (2011) are shown below:

Table 2.1  
*Global Sustainability Reporting Organizations*

Name of Organization	Date of Establishment	Membership
Centre for Corporate Citizenship (CCC)	1985	350
International Business Leaders Foundation (IBLF)	1990	70
Business for Social Responsibility (BSR)	1992	1,400
World Business Council for Sustainable Development (WBCSD)	1992	200
Social Accountability International (SAI)	1997	20
Business Partners for Development (BPD)	1998	70
The Fair Labour Association (FLA)	1999	65
Business Action for Sustainable Development (BASD)	2000	126
Global Compact (GC)	2000	6,727

*Source:* Othman & Ameer (2009)

The availability of many sustainability-reporting organizations gave rise to several reporting guidelines and standards. These standards as listed by Asaolu *et al.* (2011) are as follows:

- a. Global Reporting Initiative Sustainability Reporting Guidelines. Developed by Global Reporting Initiative (GRI) in 2000 (same as Global Compact).
- b. Oil & Gas Industry Guidance on Voluntary Sustainability Reporting. Developed by American Petroleum Initiative (API) and the International Petroleum Industry Environmental Conservation Association (IPIECA).

- c. Organization for Economic Cooperation and Development Guidelines for Multinational Enterprises. Developed by Organization for Economic Cooperation and Development (OECD).
- d. Environmental Management (ISO14001, EMAS) and ISO14000, which was introduced in 1996 by the ISO; and ISO26000 introduced in 2010. These standards enable a company to design, implement, and monitor an environmental management system. The ISO14000 standards also provide an objective way of verifying companies' environmental performance reports (Beets & Souther, 1999).
- e. Greenhouse Gas Protocol. Developed by World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI).
- f. Global Compact and United Nations Norms (GCUNN). Developed by the United Nations.
- g. AA1000 for Auditing and Assurance Process. Developed by Accountability: an international membership organization.
- h. Social Accountability 8000. Developed by Social Accountability International, which is an independent organization consisting of businesses, non-governmental organizations, trade unions, and others.

However, the most popular voluntary guidelines and standards are those issued by the GRI.

### **2.7.1 Global Reporting Initiative (GRI) Framework**

Faced with the problem of lack of universally acceptable standard, several social and environmental standards were introduced. However, the most dominant

and generally acceptable international regulations on sustainability reporting are those of GRI and ISO14001 (Ballou et al., 2006; Brown, de Jong & Levy, 2010; Creel, 2010; Fonseca, 2010). Conceived between 1997 and 1999 and established in 2002 by the UNDP and its partners (Fonseca, 2010; Lamprinidi & Kubo, 2008), the GRI is a network based non-governmental organization whose main objective is to foster sustainability reporting (economic, environmental and social performances) in what has become known as the Triple Bottom Line (TBL) reporting or “Mega” reporting (Adams, 2004; Ballou et al., 2006; Brown, de Jong & Lessidrenska, 2007; Dingwerth & Eichinger, 2010; GRI, 2011; Othman & Ameer, 2009). GRI is one of the significant organizations at international level involved in the development of voluntary sustainability reporting standards or guidelines. The reporting framework of the GRI is the world’s most widely used sustainability reporting framework for greater transparency (Brown, de Jong, & Lessidrenska, 2007; Dingwerth & Eichinger, 2010; Levy, Brown & de Jong, 2010; Tanimoto & Suzuki, 2005). GRI is used by organizations to measure and report their economic, environmental, social and governance performance (International Trade Centre, 2015). This is because GRI guidelines are comprehensive and have high international profile and influence (Adams, 2004; Creel, 2010). The GRI sustainability reporting guidelines were first published in 2000 and it focusses primarily on the contents of sustainability reports (G1, 2000 and G2, 2002). It recommends a structure for reporting sustainability issues on a GRI reports with six key elements. The unique feature of GRI in general is that it has no minimum length and emphasizes the full application of the framework guidelines.

Ballou (2006) stated that the aim of GRI is to enhance the quality, rigour, and utility of sustainability reporting. With support and input from businesses, NGOs,

accounting regulatory bodies, investor organizations, trade unions, etc., GRI have tried to formulate reporting guidelines that are universally acceptable (Ballou et al., 2006; Creel, 2010). Of all the sustainability reporting standard organizations, the GRI works very closely with the UN and has a rapid increase in the number of corporate bodies adopting it. This gives it the credibility of being universally acceptable. Ballou (2006), Creel (2010) and Godelnik (2012) confirmed that by 2006 nearly 1,000 corporate bodies from almost 60 countries have registered with and were issuing sustainability reports using all or some of the GRI standards.

#### **2.7.1.1 The Reporting Principles of GRI Framework**

There are about nine principles of GRI reporting framework. These principles as explained by Initiative (2013), defined the code of conduct of sustainability reporting through GRI framework. The first principle is the principle of “materiality”. A GRI report should contain information on topics and indicators that points out corporate economic, environmental, and social impacts. This information should be significant enough to influence the evaluation, desires and decisions of stakeholders.

The next principle is “stakeholders inclusiveness” principle. This principle recognizes that stakeholders be involved in the reporting process through consultation and identifying their expectations and interests. The sustainability report should explain how the organization has managed the individual concerns of stakeholders. A corollary to this principle is the “sustainability context” principle which, seeks to have the environmental report presented in a manner looking at what has been exploited today and showing what the organization intends to do in the future towards the

improvement or deterioration of economic, environmental, social conditions and development trends at local, regional and global levels.

The “complete” principle demands that sustainability reports based on the GRI framework must contain full information on material topics and indicators. The report’s scope must be clearly defined to show important economic, environmental, and social impacts. This is necessary to enable stakeholders assess the reporting entity’s performance for the period. Apart from completeness, a GRI report must be unbiased, objective and well balance to reflect good and bad, positive and negative, etc. aspects of organizations’ performance, so says the “balance” principle. An environmental report must be comparable to other environmental reports elsewhere. To ensure this the “comparable” principle states that issues and events should be selected, compiled, and reported consistently. Reported information in GRI reports should make it possible for users to be able to analyse changes in the organization’s performance overtime, and should support analysis relative to other organizations, industries, sectors, economies, etc. Comparability is better enhanced by the “accuracy” principle, which emphasizes that qualitative and quantitative measurements should be sufficiently accurate and detailed for interested parties to assess the organizations performance.

GRI sustainability reports should also be “timely”. Timeliness is required so that users could make informed decisions as reporting is done at intervals or on a regular and consistent basis. The usefulness of any information lies in the fact that it is disclosed in time for users to effectively integrate it into their decision-making process. In addition to this, information reported should be very clear and precise. “Clarity” principle entails comprehensiveness, understandability, and accessibility of information for users. Whatever method of dissemination applied, the information in

the report must be simplified enough for stakeholders to digest. Information in the form of pictures, graphs, and diagrams helps a lot in this respect.

Finally, GRI reporting frameworks are governed by the “reliability” principle. To ensure reliability the information and processes used to prepare the report should be qualitative. The method of gathering, recording, compiling, analysing, and disclosing information must be such that it could be subject to examination. Any examination of the report must establish the quality and materiality of information contained therein.

#### **2.7.1.2 GRI Sustainability Reporting Guidelines [G1 (2000) and G2 (2002)] Framework**

Adams (2004) outlined these elements as contained in the framework of G1:

- a. Chief Executive Officer’s (CEO) Statement
- b. Profile of the Reporting Organization
- c. Executive Summary and Key Indicators
- d. Vision and Strategy
- e. Policies, Organization and Management Systems
- f. Performance Indicators

G2 however, transferred “CEO’s Statement” to “Vision and Strategy” and then replaced “Executive Summary” with GRI “Content Index” to show the location of an information in the report. At its initial stage the guidelines call for reporting to be done based on selection and consultation of major stakeholders. The guideline also demands for stakeholders participation and the disclosure of material issues regarding employees and other stakeholders.



The G2 framework provides for external assurance guidance in the sustainability report to enhance the quality of the report. Thus emphasizing that an acceptable assurance must be conducted by competent parties external to the organization, implement the assurance in a systematic-documented-evidence-based manner, assesses the extent of applying GRI guidelines and report an opinion available in written form (Ballou et al., 2006). This enables it to promote transparency and accountability (Creel, 2010). According to Guenther, Hope and Poser (2007) the G2 framework consists of five main sections:

- a. Vision and Strategy of the company
- b. Profile of the company
- c. Governance Structure and Management Systems
- d. GRI Content Index
- e. Performance Indicators on Economic, Environmental, and Social Perspectives.

In the G2 framework a measure of economic, environmental and social performances whether quantitatively or qualitatively was introduced. This measurement of performance known as “Performance Indicators” was divided into 16 core indicators and 19 additional indicators. GRI considers a “one basis” for all reporting relevant to all organizations and reported on the TBL format for easy comparison and comprehension (Guenther *et al.*, 2007; Othman & Ameer, 2009).

The upgraded version of G2 introduced in 2008 (i.e. the G3), introduces four main standard disclosures guidelines (Othman & Ameer, 2009). These are “Strategy, Economic, Environmental, and Social”. The social disclosures now consist of “Labour Practices & Decent Work”, “Human Rights”, and “Society & Product Responsibility”. The sustainability disclosure includes disclosures on an

organization's impact on living and non-living natural systems (the environment) and the ecosystem. The guidelines emphasises the disclosure of inputs and outputs into and out of the production system.

The major disadvantage of the GRI frameworks is that it is voluntary because corporate bodies are not expected to notify the GRI or any authority of their reporting process. Another weakness pointed out by Othman and Ameer (2009), is that TBL reporting is misleading as financial performance always dominates corporate reporting. It is also argued that the GRI reporting framework focusses more on environmental and human sustainability as opposed to business sustainability. Furthermore, the emission of GHGs like NO<sub>2</sub>, SO<sub>2</sub>, and CO<sub>2</sub> needs serious structural changes for it to be effectively measured in the GRI reports of developing countries. Another unique problem of GRI is the presence of many casual workers in the employee list of companies in developing economies which, makes reporting on the employment aspect tedious (Othman & Ameer, 2009).

### **2.7.1.3 Sustainability Reporting Guidelines Version G3 & G3.0 (2006-2011) and Version G3.1 (2011-2013) Framework**

Part 2 of this guideline gives the standard disclosures to be made. Items to be disclosed are broadly classified into five groups. They include:

- a. Strategy and Analysis
- b. Organizational Profile
- c. Report Parameters
- d. Governance, Commitments and Engagements
- e. Management Approach and Performance Indicators:
  1. Economic

2. Environmental
3. Social (Labour Practices and Decent Work, Human Rights, Society and Product Responsibility)

The standard disclosures are expected to provide relevant and material information of interest to stakeholders. Generally, any disclosure must be able to show the overall strategy, profile, and method of governance of the company. Moreover, the “Management Approach” items should disclose how the organization addresses issues to provide bases for the understanding of performance in certain areas. Performance indicators should also be displayed to enhance comparable information on economic, environmental, and social performance of the organization.

#### **2.7.1.4 Major Content Disclosure of G3 (G3.0 and G3.1) Frameworks**

- a. Strategy and Analysis: - This must contain a statement from the Chief Executive Officer (CEO) on the relevance of sustainability to the business and what strategy does the organization have on sustainable development. In addition to this, the management must outline key social and environmental impacts, risks, and opportunities. (GRI 1.1-1.2).
- b. Organizational Profile: - This must contain the name of the organization, primary brand, products or services, operational structure, principal office of residence, number of countries of operation, nature of ownership and legal form, markets, number of employees, net sales, capital structure, total assets, significant changes during the period and Awards received during the reporting period. (GRI 2.1-2.10).

- c. Report Parameters: - The reporting parameters encompasses accounting year-end, recent report, reporting cycles, boundary of reports, boundary of report limitations, basis for reporting, data measurement techniques, explanation of re-statement, significant changes and content index to identify the location of standard disclosures. The organization's policy on Auditing and Assurance should also be disclosed. (GRI 3.1-3.13).
- d. Governance, Commitments and Engagements: - The governance aspect of the organization should show the organizational structure, duality, number of board members, recommendation mechanism, conflict of interest resolution process, qualifications and expertise of board members, mission statement, TBL management strategy and the performance appraisal on management. The organization must also reveal its commitments to external initiative. There must be an explanation on how management intends to address risk management in operational planning or the introduction of new product, development of economic, environmental, social agreements, and industrial membership or association. Disclosure on stakeholder management should show list of stakeholders (individuals or groups), basis of identifying stakeholders, stakeholder's engagement approach, and key issues raised by stakeholders. (GRI 4.1-4.17).
- e. Management Approach and Performance Indicators: - Management approach should be disclosed in relation to economic performance, market presence and indirect economic impact, organizational objective and organizational policy. For simplicity purposes, the section is categorized into economic, environmental, and social categories.

1. The economic dimension of sustainability centres on two basic items: the flow of capital among stakeholders and the economic impact of the organization throughout society. Economic performance covers revenue, financial implications of risks and opportunity of the organization benefit plan obligations and financial assistance from government. Market presence should disclose organization's policy on branches, market ratios, and local employment procedures. The indirect economic impact consists of infrastructure and services provided for public benefit and describing significant indirect economic effect.
2. The environmental dimension concerns an organization's impact on the economic system. This disclosure covers performance related to inputs and outputs such as material, energy, water, emissions, effluents and biodiversity & wastes. Also disclosure should be made on departments in charge of environmental aspects like education, training & awareness, monitoring & follow-up, environmental successes & shortcomings, risks & opportunities, major changes to the environment and key environmental strategies.
3. On social performance disclosure, there should be disclosure of the goals and performance, social policy, organizational responsibility, training & awareness, monitoring & follow-ups on social issues, employment, management's relationship with the community, health & safety, training & education, diversity & equal opportunities on the following: labour practice &

decent work, human rights, society (community), and product responsibility. There should be a general reporting note on data gathering, report form and frequency & assurance.

### **2.7.1.5 G4 Sustainability Reporting Principles and Standard Disclosures**

As the use of sustainability reporting standards gains ground, GRI is more and more becoming the most acceptable disclosure standard; hence needs upgrading. Corporate bodies are becoming aware that long-term economic performance must go hand-in-hand with environmental and social issues, which are made tangible and concrete (Initiative, 2013). The G4 sustainability reporting disclosure guideline is the fourth updated guideline of GRI and was developed to enable easy accessibility and comparability of environmental and social information. It is a product of the periodic review of GRI reporting standards whose aim is to provide the best and current guidelines for effective sustainability reporting. Specifically, the GRI updated version of G4 targets:

- a. The production of sustainability reports that matters.
- b. List valuable information about an organization's most critical economic, environmental and social issues.
- c. Establish a general standard for sustainability reporting.

The periodic review and updating of the standard is necessary for society and markets. A reviewed content is vital to curtail exceptional reporting by minority of leading companies as against standard practices. G4 emphasizes the need to focus the reporting process on material issues for relevant, credible, and user-friendly reports. Moreover, it is intended that the application of G4 framework covers large, medium,

and small organizations across the globe. Supported by other GRI materials and services, the features of G4 are easier to use by experienced as well as non-experienced sustainability reporters.

#### **2.7.1.6 Major Upgrading Disclosure Contents of G4 (2013)**

The major upgrading of this version from previous versions (G1, G2, and G3) is that it provides for a broad disclosure called “Standard Disclosure” (SD) which, has been classified into two major categories: “General Standard Disclosures” (GSD) and “Specific Standard Disclosures” (SSD). While the latter contain the same features of G3.0 and G3.1 under “Management Approach and Performance Indicators” (fifth item), the former has seen the replacement of “Report Parameters” and “Governance, Commitment & Engagement”. In their places are inserted the following items:

- a. Identified Material Aspects and Boundaries (G4 17-23).
- b. Stakeholder Engagement (G4 24-27).
- c. Report Profile (G4 28-33).
- d. Governance (G4 34-55).
- e. Ethics and Integrity (G4 56-58).

This increases the total items on the SSD to seven as against five in previous versions of G3.0 and G3.1.

Identified Material Aspects and Boundaries: - Disclosures include:

1. A list of all the organizations subsidiaries or sub-subsidiaries (if any).
2. The process for defining Report Content and Aspect Boundaries.
3. A list of all Material Aspects (economic, environmental, and social).

4. A statement on whether “material aspects” are within or outside the organization.
5. Stating the effects of re-statement of information.
6. Report on significant changes in “scope & aspect” boundaries.

Stakeholder Engagements: - This should disclose:

1. A list of stakeholders and their basis of selection.
2. The organization’s approach to stakeholders’ engagement.
3. Key concerns raised with stakeholder and the organization’s response to them.

Report Profile: - It contains important information on GRI “Content Index” and method of soliciting external “assurance”. It discloses:

1. Date of the most recent report.
2. Reporting periods (weekly, monthly, quarterly, biannually, or annually).
3. The provision of contact point for questions on “report contents”.
4. Shows the “in accordance option”, GRI “content index”, and reference to “external assurance report”.

Governance Structure and Composition: - This disclosure is necessary for transparency and accountability. It contains:

1. Organizational governing structure especially on economic, environmental, and social impacts.
2. Process of delegation of authority with regards to economic, environmental, and social topics.
3. The availability of executive members on economic, environmental, and social responsibilities.



4. The process of consultation between management and stakeholders.
5. Board characters like non-executive members, independence, numbers, tenure, gender, social group's representatives, technocrats, and stakeholder representatives.
6. Dual membership.
7. Method of board appointments.
8. Management of conflict of interest.
9. Board's role in setting purpose, values, and strategy.
10. Boards competency and performance evaluation.
11. Board's role in risk management.
12. Board's role towards sustainability reporting.
13. Remuneration and incentive policies.

Ethics and Integrity: - The standard disclosures on this must contain organization's values, principles, standards, norms, advice on ethical and legal behaviours, and reporting unethical, unlawful, and matters of integrity.

#### **2.7.1.7 The Contents of Standard Disclosure of G4**

As already mentioned, the 2013 version of GRI popularly known as GRI-4 or G4 provides for two types of disclosures under Standard Disclosures (Initiative, 2013). These include:

1. General Standard Disclosure (GSD)
2. Specific Standard Disclosure (SSD)

Table 2.2  
*Total Number of G4 Disclosure Indicators*

Type of Disclosure	Categories of	Aspects of	Number of	Disclosure Items
--------------------	---------------	------------	-----------	------------------

	Disclosure	Disclosure	Aspect Indicators	
<b>General Standard Disclosure (GSD) Specific Standard Disclosure (SSD):</b>		General information	7	<b>G4-01 to G4-58</b>
	Economic	Economic and financial information	4	<b>G4-EC01 to G4-EC09</b>
	Environmental	Environmental information	12	<b>G4-EN01 to G4-EN34</b>
	Social:	Labour Practices & Decent Work	8	<b>G4-LA01 to G4-LA16</b>
		Human Rights	9	<b>G4-HR01 to G4-HR12</b>
Society		7	<b>G4-SO01 to G4-SO11</b>	
	Product Responsibility	5	<b>G4-PR01 to G4-PR09</b>	
<b>Total Indicators</b>			<b>52</b>	

See Appendix O for the full G4 sustainability information disclosure Score Card.

Though the G4 disclosure consists of 149 “indicators” classified into 52 “aspects” (see Table 2.2 and Appendix O), this research selected only 33 indicators (see Table 3.4 and Appendix G). The reasons for this decision was first and foremost to align the research with the works of Adams (2004) and Adams & McNicholas (2007), where GRI standard was applied with 33 indicators in order to assess the extent to which corporate sustainability reporting reflects improved corporate accountability on performance. Moreover, their study seeks to contribute to the understanding of the corporate process for developing a sustainability report.

Based on the review of some of the annual financial reports of the population, some GRI indicators are given very little priority in the Nigerian situation. Indicators like supplier environmental assessment (G4-EN32 to G4-EN33), equal treatment for women and men (G4-LA13), non-discrimination (G4-HR03), anti-competitive behaviour (G4-SO07), customer privacy (G4-PR08), etc. are hardly covered by triple bottom line reporting in Nigeria. This coupled with the fact that triple bottom line reporting in Nigeria makes no provision for sustainability issues specifically, due to the mandatory nature of sustainability reporting. Hence, this research adopts only the most relevant items of GRI4 peculiar and important to reporting in Nigeria.

The GSD is on the broad aspects of an organization“ attributes and comes under Paragraph 237. Its provisions touches on the following aspects of an organization.

<b>Aspect</b>	<b>G4 Sustainability Code</b>
Strategy & Analysis	G4-1 - G4-2
Organizational Profile	G4-3 - G4-16
Identified Material Aspects and Boundaries	G4-17 - G4-23
Stakeholders Engagement	G4-24 - G4-27
Report Profile	G4-28 - G4-33
Governance	G4-34 - G4-55
Ethics and Integrity	G4-56 - G4-58

The SSD on the other hand deals with the three aspects of TBL reporting.

They are:

- a. The Economic Category
- b. The Environmental Category
- c. The Social Category

It should be emphasized that aspects to be disclosed are aspects that are “material” to the organization“s operations as a review of some annual financial reports shows that GRI indicators are given very little priority in the Nigerian situation.

#### **2.7.1.7.1 Economic Sustainability Disclosure (G4-EC1 to G4-EC9)**

This deals with information disclosure concerning a company“s impact on the economic conditions of its stakeholders and the economic system in general. It illustrates the flow of capital among different stakeholders at local, national as well as

global levels. The various aspects of sustainability to be reported under this category are listed and explained below.

<b>Aspect</b>	<b>G4 Sustainability Code</b>
Economic Performance	G4-EC1 - G4-EC4
Market Presence	G4-EC5 - G4-EC6
Indirect Economic Impacts	G4-EC7 - G4-EC8
Procurement Practices	G4-EC9

#### **2.7.1.7.2 Environmental Sustainability Disclosure (G4-EN1 to G4-EN34)**

Environmental sustainability disclosure deals with a firm's operational impact on the biodiversity which comprises both living and non-living natural systems (Initiative, 2013). The ecosystem made up of land, air and water, could be damaged during the production process of a firm through input related impact such as energy and water or output related effects of emission, effluents & wastes, etc. It is therefore, incumbent on a firm's accounting system to make disclosure on these aspects including transport, products & services related impacts as well as environmental compliance and expenditure (Initiative, 2013). The major aspects to be disclosed by an organization in the environmental category under SSD (Section 5) of G4 Sustainability Reporting Guidelines ranges from G4-EN1 to G4-EN34 as given below.

<b>Aspect</b>	<b>G4 Sustainability Code</b>
Materials	G4-EN1 - G4-EN2
Energy	G4-EN3 - G4-EN7
Water	G4-EN8 - G4-EN10
Biodiversity	G4-EN11 - G4-EN14
Emissions	G4-EN15 - G4-EN21
Effluents & Wastes	G4-EN22 - G4-EN26
Product & Services	G4-EN27 - G4-EN28
Compliance	G4-EN29
Transport	G4-EN30
Overall	G4-EN31
Supplier Environmental Assessment	G4-EN32 - G4-EN33
Environmental Guidance Mechanism	G4-EN34

### 2.7.1.7.3 Social Sustainability Disclosure

Social sustainability category is about an organizations impact on the social system within which it operates (Initiative, 2013), especially the immediate or host community. Disclosure on the social category has been grouped into four main sub-categories as shown below:

<b>Sub-category</b>	<b>G4 Sustainability Code</b>
Labour Practices & Decent Work	G4-LA1 - G4-LA16
Human Rights	G4-HR1 - G4-HR12
Society	G4-SO1 - G4-SO11
Product Responsibility	G4-PR1 - G4-PR9

#### 2.7.1.7.3.1 Labour Practices & Decent Work

This sub-category deals with labour practices based on internationally recognized universal Standards and Conventions of the United Nations (UN), International Labour Organization (ILO) and the Organization for Economic Cooperation & Development (OECD). It discloses the following with regards to labour practices & decent work.

<b>Aspect</b>	<b>G4 Sustainability Code</b>
Employment	G4-LA1 - G4-LA3
Labour Management Relations	G4-LA4
Occupational Health & Safety	G4-LA5 - G4-LA8
Training & Education	G4-LA9 - G4-LA11
Biodiversity & Equal Opportunity	G4-LA12
Equal Remuneration for Women and Men	G4-LA13
Supplier Assessment for Labour Practices	G4-LA14 - G4-LA15
Labour Practices Grievances Mechanism	G4-LA16

#### 2.7.1.7.3.2 Human Rights

Human rights sub-category aspect covers incidence of human rights laws, protection, enforcements, violations and changes in stakeholder's ability to exercise

and enjoy the fundamental rights under the United Nation’s Declaration and Conventions of 1948 and 1966.

<b>Aspect</b>	<b>G4 Sustainability Code</b>
Investment	G4-HR1 - G4-HR2
Non-discrimination	G4-HR3
Freedom of Association and Collective Bargaining	G4-HR4 - G4-HR5
Forced or Compulsory Labour	G4-HR6
Security Practices	G4-HR7
Local Rights	G4-HR8
Assessments	G4-HR9
Supplier Human Rights Assessment	G4-HR10 - G4-HR11
Human Rights Grievance Mechanisms	G4-HR12

### 2.7.1.7.3.3 Society

Society sub-category covers organization’s impact on host, local and immediate communities and on society in general.

<b>Aspect</b>	<b>G4 Sustainability Code</b>
Local Community	G4-SO1 - G4-SO2
Anti-corruption	G4-SO3 - G4-SO5
Public Policy	G4-SO6
Anti-competitive Behaviour	G4-SO7
Compliance	G4-SO8
Supplier Assessment for Impacts on Society	G4-SO9 - G4-SO10
Grievance Mechanism for Impacts on Society	G4-SO11

### 2.7.1.7.3.4 Product Responsibility

This sub-category is concern with the products and services that have direct impact on all stakeholders especially customers.

<b>Aspect</b>	<b>G4 Sustainability Code</b>
Customer Health & Safety	G4-PR1 - G4-PR2
Product and Service Labelling	G4-PR3 - G4-PR5
Marketing Communications	G4-PR6 - G4-PR7
Customer Privacy	G4-PR8
Compliance	G4-PR9

Table 2.3

*Summary of GRI Evolution (1997-2013)*

Year	Version	No. of Sections	Major Provisions
1997	-	-	No guidelines were issued during this period
2000	G1	6	CEO Statement, Organizational Profile, Executive Summary, Vision & Strategy, Organizational Management and Performance Indicators
2002	G2	5	Transferred CEO's Statement to Vision & Strategy and introduced GRI Context Index in place of Executive Summary
2006, 2008 & 2011	G3, G3.0 & G3.1	5	Strategy & Analysis, Organizational Profile, Report Parameters, Governance, Commitment & Engagement, Management Approach & Performance Indicators: Economic, Environmental & Social.
2013	G4 Standard Disclosures (SD)	7	<p><b>General Standard Disclosure (GSD):</b> Strategy &amp; Analysis, Organizational Profile, Identifying Material Aspects &amp; Boundaries, Stakeholders Engagement, Report Profile, Governance, Ethics &amp; Integrity (G4-1 to G4-58)</p> <p><b>Specific Standard Disclosure (SSD):</b>  <b>Economic Disclosure (G4-EC1 to G4-EC9):</b> - Economic Performance, market Presence, Indirect Economic Impacts Procurement Practices.  <b>Sustainability disclosure (G4-EN1 to G4-EN34):</b> - Material, Energy, Water, Biodiversity, Emissions, Effluents &amp; Wastes, Product &amp; Services, Compliance, Transport, Overall, Supplier Environment Assessment, Environmental Guidance mechanism.  <b>Social Disclosure: -</b>  Labour Practices &amp; Decent Work (G4-LA1 to G4-LA16)  Human Rights (G4-HR1 to G4-HR12)  Society (G4-SO1 to G4-SO11)  Product Responsibility (G4-PR1 to G4-PR9)</p>

Below is the structural framework of G4 (2013)

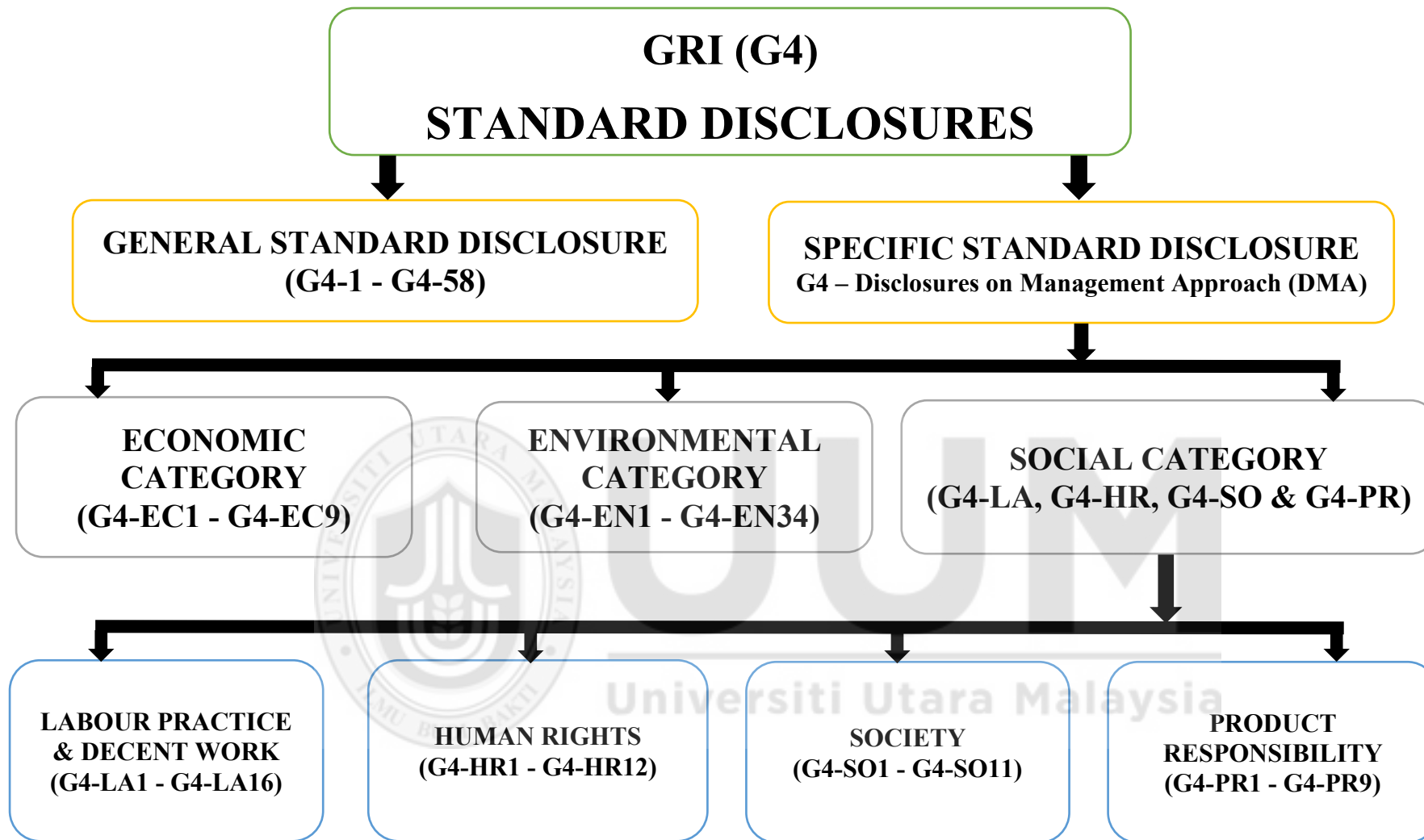


Figure 2.1

*GRI-4 (G4) Sustainability Disclosure Guideline Framework*

Source: Drafted by author from GRI-4 Literature Reviewed (Initiative, 2013)



### 2.7.2. Global Reporting Initiative (GRI) Empirical Results

Brown, de Jong, and Lessidrenska (2007) traced the development of GRI since inception in 1999. They noted that the standard has gradually worked its way to the top of voluntary sustainability reporting system. GRI was able to attain this feat due to its provision of multi-stakeholder process, institutionalization of the reporting process and establishing an institution to serve as the custodian of the guidelines and process. Despite limited resources, visibility and political power, GRI has been able to achieve a win-win solution for all actors (Brown *et al.*, 2007). However, balancing competing objectives like between individual and collective interests, by GRI has left a legacy of unresolved tension from its trade-offs. This inconclusiveness and multi-stakeholder participation may serve as fuel for effecting social change.

Shedding light on the dynamics and the potential of transparency policies was the contribution of Dingwerth and Eichinger (2010) to their study of GRI. Investigating the tension of how transparency policies empowered users of disclosed information as against reporters, seeks to know the relevance of data on sustainability if the aim is to empower users rather than producers (Dingwerth & Eichinger, 2010). The result of their work showed that GRI has had little impact in shifting the balance of power in corporate governance towards society. Those whose interests are threatened by the shift of power will seriously oppose transparency policies. While empowerment may be used to justify transparency policies, the policy can survive even without empowering users.

Hedberg and von Malmborg (2003) tackled the question on the emphasis of GRI by modern firms. From their survey of all Swedish companies that uses GRI guidelines, they discovered that companies produced reports mainly to seek legitimacy, increased credibility, and internal communication. Thus, visibility and

control of TBL reporting was effective by GRI guidelines. Jenkins and Yakovleva (2004) explored trends in reporting of environmental impacts and issues in mining industries. Using a case study of the 10 largest global mining companies, their analysis showed evidence of increasing sophistication on GRI disclosure development, variation in the maturity of reporting context and style of these companies. Thus, the companies were classified into “leaders” and “laggards” (Jenkins & Yakovleva, 2004). The implication is that the strong leadership and cooperation from “leaders” is a necessary support for “laggards” in the industry.

GRI’s success can be attributed to “institutional entrepreneurs” (Levy, Brown, & de Jong, 2010). The standard has failed to use disclosure to make users of disclosed information more powerful than the presenters of such information (for example non-governmental organizations). Alonso-Almeida, Llach and Marimon (2012) evaluates the diffusion of GRI in all sectors of the economy. Their application of logistic curve model and the instability and concentration indices were used to assess the diffusion process. Paying more attention to the financial and energy sectors, results suggests that most firms adopted GRI in order to gain recognition in terms of visibility, pollution, and internationality. The use of GRI could enable firms gain market-credibility, attract new investors, and identify new legitimate identities (Alonso-Almeida *et al.*, 2012).

TBL has become institutionalized through the GRI reporting guidelines (Milne, Ball & Gray, 2005). Milne, Ball and Gray (2005), reported the narrow and incomplete reporting practices by organizations“ that later make stronger claims for sustainability. They argue about the insufficiency of TBL and GRI for organizations“ contribution to the earth“s economy. Evidence from practices seems to show that GRI does not increase accountability by reporting on economic, environmental and social

performance of organizations (Moneva, Archel & Correa, 2006). Some organizations' irresponsible behaviours with regard to gas emission, social equity, and human rights continue. This faults the sustainability development approach adopted by the GRI guidelines.

Sherman (2009) explored the value added of GRI (G3) to external reporting of company's economic, environmental and social performance. He concluded that if the aim of G3 is to compare and contrast companies like Nike and Adidas, then the guidelines of G3 have failed and there is a long way to go in establishing a new guidelines. The Japanese approach to CSR may be well differ from the Western approach due to differences in socio-economic characteristics. After conducting empirical tests Tanimoto and Suzuki (2005), discovered that the adoption of GRI guidelines by Japanese firms marks the erosion of the traditional corporate-centred system of Japan. Moreover, the way of adoption differs significantly between Japan and the West, which may be a sign of cultural resistance to total convergence. Heightened interest in nonfinancial reporting can only enhance demand for more wide spread sustainability reporting (Woods, 2003). Woods (2003) insisted that "assurance guidelines" was crucial because the accounting profession is opportune to play a significant role in this regard. Companies should therefore, familiarize themselves with GRI and its work (Woods, 2003).

In summary, research on GRI has spread widely from studies that looked at balancing competing objectives to the use of GRI in empowering users of it and various conclusions have been drawn. The question of why emphasize on the GRI as the most popular nonfinancial reporting tool in almost all sectors especially the mining sectors, has also been covered widely. Some studies sees GRI as having failed in producing adequate economic, environmental and social information for

sustainability development thereby questioning its accountability and value-added. However, there are hardly studies that tried to relate GRI to administrative authorities in the form of environmental monitoring or supervisory agencies in the public sector. In Nigeria, there are specialized government agencies and institutions charged with the responsibility of ensuring compliance with environmental guidelines and standards. Therefore, attempt was made in this research to relate the latest version of GRI (G4) to policy administrators and environmentally sensitive sectors of the Nigerian economy as a developing country.

### **2.7.3 A Preview of EGASPIN**

Introduced in 1991, the Environmental Guidelines and Standards for the Petroleum Industry in Nigeria is better known as EGASPIN and is under the authority of the DPR in Nigeria (Ofuani, 2011). Operations in the Petroleum industry in Nigeria are complex. The entire operations involve processes from exploration, mining, transportation, and marketing. At each stage of production, solid, liquid, or gaseous wastes are produced and discharged. These wastes can cause pollution and as such, regulations are needed. The Petroleum Act (1969) empowers the Minister of Petroleum Resources to make regulations for the prevention of pollution of watercourses and the atmosphere. Generally, some of the statutes governing pollution in Nigeria are given on the Table 2.4:

Table 2.4  
*Laws Governing Pollution in Nigeria*

<b>Ordinance/Decree/Act</b>	<b>Date</b>
Mineral Ordinance	1914
Petroleum Act	1990
Oil Pipeline Act	1990
Federal Environmental Protection Agency Act	1990
Associated Gas Re-injection Act	1990
Guidelines and Standards for Environmental Pollution Control in Nigeria	1991
Impact Assessment Decree	1992
Criminal Code	1990
Harmful Waste Act	1990
Sea Fisheries Decree	1992
Territorial Waste Act	1990
Explosive Act	1964 & 1967
Oil Terminal Dues Act	1969

*Source:* Ofuani, 2011

There is hardly any law according to Ofuani (2011), that governs offshore exploration and production waste management in Nigeria. EGASPIN only contains effluent limitations, standards, rules and procedures for assessing and monitoring different types of wastes into the environment. Even the NESREA Act of 2007 empowered to regulate disposal of hazardous chemicals and wastes does not have any jurisdiction over the oil & gas industry (Ofuani, 2011).

EGASPIN outlined some of the specific regulations about the petroleum industry. They include Petroleum (Drilling and Production) Regulation (1969), Mineral Oils (Safety) Regulations (1963), Petroleum Regulations (1967), Oil in Navigable Waters Decree no. 34/Regulation (1968), Oil Pipeline Ordinance Cap. 145 of 1956 as amended (1965) and Petroleum Refining Regulations (1974). The growing concern for environmental damages due to oil related pollution forced the DPR to issue:

...interior guidelines concerning the monitoring, handling, treatment and disposal of effluents, oil spills and chemicals, drilling muds and drill cuttings by leases/oil operators. Tentative allowable limits of waste discharges into fresh waters, coastal

waters, and offshore areas of operations were established (EGASPIN, 1991:1).

These guidelines were aimed at environmental quality control of the petroleum industry, taking cognisance of host communities and to provide a comprehensive document on pollution in the Petroleum Industry. It also targeted standardization of the environmental pollution abatement and monitoring procedures. EGASPIN (1991) is divided into 10 Parts as seen on Table 2.5.

Table 2.5  
*Major Sections of EGASPIN (1991)*

<b>Parts</b>	<b>Content</b>	<b>Page Range</b>
I	Introduction	1-2
II	Exploration and Development Operations	3-43
III	Production Operations	44-62
IV	Terminal Operations	61-70
V	Hydrocarbon Procession Operations	71-109
VI	Oil and Gas Transportation	110-119
VII	Marketing Operations	120-131
VIII	Standardization of Environmental Abatement Procedures	132-193
IX	Schedule of Implementation, Permits Enforcement Powers and Sanctions	294-304
X	Definitions and Acronyms	305-314

*Source:* EGASPIN 1991

Part I: This is the introductory part and it gives a general background of the Petroleum Industry in Nigeria and the objectives of the Standard (EGASPIN).

Part II: This Section mentions the different types and quantity of pollutants discharge at each stage of exploration and development operations. The physical location of the operation (onshore, near shore, offshore or deep waters) dictates the manner in which they are conducted. The guidelines in this section aims at establishing an effective and uniform monitoring and control program for activities in exploration and development operations to ensure compliance with environmental management.

- Part III: This section discusses the actual extraction of hydrocarbons. During this process, production formation wastes, drilling fluids, drill cuttings, etc. are discharged. The guideline thus regulates the environmental management practices in the production and discharge of these wastes.
- Part IV: The section deals with the major terminals/tank farms. Malfunctioning of equipment or inefficiency may lead to the discharge of oil and oily wastes. The guideline therefore, regulates environmental management practices in this area.
- Part V: The standard in this section is concerned with the actual processing of hydrocarbon. That is, the entire process of converting hydrocarbon (Crude Oil) into molecular constituents, molecular cracking, molecular rebuilding and solvent finishing. These processes release toxic gaseous, liquid, and solid effluents. The guideline provides control conditions to avoid environmental damages. Guidelines on how the quality of effluent and mode of effluent disposal are regulated and controlled are stated under this section.
- Part VI: Transportation of Hydrocarbon by pipelines, barges, ships, road tankers, rail wagons, etc. may cause spillage or wastage thereby leading to environmental problems. This process may witness the occurrence of so many pollution problems caused by damaged pipelines, leakages, leaking barges, ships, and accidents. To minimize the impacts of such accidents on the environment and the ecosystem, the standard has established uniform guidelines for such operations under this section.

Part VII: Nigeria's depot, which stored processed petroleum products all over the country are linked with network of pipelines. Some of these storage facilities have capacities of about 150,000 barrels. Accidents or damages may occur to these storage tanks and could lead to pollution. This section of EGASPIN lays out the uniform standard to be observed in this area.

Part VIII: This section deals with the tools to be used for environmental preservation and protection. The government must ensure proper restoration and clean-up of the environment to an acceptable level. This could be made effective through proper planning, monitoring of new installations and new projects to prevent any degradation of the environment. Environmental Evaluation Report (EER) or Environmental Impact Assessment Report (EIAR) are the major tools used. EER is an evaluation tool for already polluted or impacted environment, so that the extent of pollution will be known and strategies designed for protection and restoration of damaged areas. In short, it is a post humus assessment of environmental impact. EIAR on the other hand, evaluates all operations that may lead to the physical, chemical, biological, cultural, and social transformation of the natural habitat for embarking on new projects or developing new installations. The EIAR is not a justification for decision-making but an assessment of the environmental impacts of proposed action plans. EGASPIN lays down guidelines for the manner and style in which comprehensive EER and EIAR could be carried out. It covers standards for all EER and EIAR contingency planning, hazardous waste management,



procedures for monitoring “physic-chemical” parameters, biological monitoring of effluents, wastes management, and remediation of contaminated land, environmental management system and environmental audit/reviews.

Part IX This section is concern with the guidelines on registration of all point source discharges from petroleum, and redesigning of existing sampling points. It also states standards for the development of pollution control devices, monitoring of effluent discharges and relevant feasibility studies on contingency measures.

Part X This section is a glossary for all acronyms and technical terms used in the EGASPIN standard.

It should however, be noted that unlike sustainability reporting standards like GRI, ISO14001, and ISO26000 which makes provision for uniform disclosure guidelines, EGASPIN does not seem to make any provision for disclosures on sustainability issues. In effect, EGASPIN is not a disclosure standard per say, but rather the federal government’s policy on petroleum exploration, mining, distribution, and marketing operations. The emphasis of EGASPIN is on operational issues of the entire petroleum processing and production line. The standard lays down norms to be followed in the petroleum production process for environmental protection but does not make it mandatory for organizations to disclose their operations either through EGASPIN or any of the globally acceptable sustainability reporting standards. Consequently, the standards and regulations of EGASPIN may leave so many loopholes as it is neither a law nor a reporting standard. DPR enforcement of it does

not allowed or enable its practical binding on organizations thereby effectively making sustainability disclosure in the oil & gas industry in Nigeria voluntary.

## **2.8 Sustainability Reporting in the Non-Oil & Gas Sector in Nigeria**

### **2.8.1 Environmental Challenges to the Non-Oil & Gas Sector**

Environmental pollution in sectors other than mining is hardly recognized or reported in most economies (Tilt & Symes, 1999). As far as Nigeria is concerned, the rate of environmental pollution in other sectors of the economy may not be as high as the petroleum sector. Unlike developed countries where the rate of emissions from the manufacturing sector poses the greatest threat to climate change, light-industries predominate in developing countries (Volconici, 2014). This does not however, serve as an indication of lack of environmental threat from the non-oil and gas sectors. In Nigeria, for instance sectors like the agricultural, construction, real estate, healthcare, industrial goods (manufacturing), and solid mineral extraction are all industries of probable environmental threat. In agriculture, Africa's second biggest economy is fast moving towards desolation and barrenness by continuous and unchecked pollution of all kinds (Uzokwe, 2003). Uzokwe (2003) pointed out that even though experts and well-meaning individuals complain about the situation on the health of Nigerians, the federal government has failed to tackle the issue properly. Pollution has become so serious an issue that scientists now relate it to the rate of mortality in "a country". Though no statistics exist to back this in Nigeria Uzokwe (2003), made it clear that people eat, drink and breathe material that have toxic chemicals in them. Despite the many policy instruments, laws and regulations being put in place by the Federal Ministry of Environment (FME), positive results are not forthcoming on sustainability issues (Uzokwe, 2003).

Looking at firms especially in the agricultural sector, Hossain, Islam and Andrew (2006) investigated the extent of social and sustainability reporting in corporate annual reports. A disclosure index to measure the extent of sustainability reporting in Bangladesh was developed and used. They reported significant differences in the levels of sustainability disclosure. The result of the “mean value” indicate very few companies are making effort to provide sustainability information on voluntary basis by agricultural firms (Hossain *et al.*, 2006). Most of the reports disclosed qualitative instead of quantitative results and it is shown that Bangladesh have the lowest level of sustainability reporting. Secondary data and content analysis were used for this research.

Othman and Ameer (2010) also examined sustainability reporting in the agricultural sector, concentrating efforts in the palm oil plantation industry by looking at its implications on the environment. Their result gave a very low rate of disclosure on items like environmental policy, measurement systems, target for improvements and impact on biodiversity. The gaps in the mentality of producers of palm oil and stakeholders brought about by the concealing of the true picture from stakeholders, need to be address in order to curb environmental degradation (Othman & Ameer, 2010).

In an environment of high rate of growth of real estate Khalid Md. Bahauddin (2012), analyzes the impact of climate change over time on real estate investment. Being contingent on long-term investment, the impact of climate change on the industry is likely to be huge as Bangladesh is among the worst hit countries of climate change (Khalid Md. Bahauddin, 2012). Basing his study on conceptual analysis, he was able to identified the possible impact of climate change on real estates in Bangladesh as impacts like flooding, damages to external cover, wind-related

structural damages, decreased durability, poor performance of material, poor internal environment, subsidence, pressure on water resources, construction delays, future carbon prices and emissions, revenue opportunities arising, and hedging strategies for carbon markets (Glass, 2012; Khalid Md. Bahauddin, 2012). A more structural approach to managing climate change should therefore, be adopted. Measures like assessing and monitoring risk exposures and getting feedback, and responsible property investments; are just some of the measures that could curb it.

The construction industry is far behind other industries in sustainability reporting (Glass, 2012). In a research that aimed at clarifying and defining a framework for future development of sustainability reporting in the construction industry Glass (2012), used conceptual analysis through the review of literature, reports and standards to evaluate the state of the construction industry. Discoveries made range from the fact that sustainability reporting can drive changes, offer competitive advantage, and bring about reputational capital. The work of the research was based on pure conceptual analysis of past literature.

The reaction of investors to the effectiveness of sustainability disclosures of firms in the chemical industry in order to deter pollution shows that firms incur statistically significant negative stock market returns (Khanna *et al.*, 1997). These losses have negative impact on subsequent on-site toxic released and positive impact on wastes transferred off-site. The research, based on the use of secondary data, analyzed the situation using chi-square. It recommended the substitution of off-site transfers for on-site discharges. An exploration of some strategic implication of sustainability reporting as a tool for improved environmental management was undertaken by Sumiani, Haslinda and Lehman (2006). Basing the enquiry on ISO14000 standards, the research reviewed the image and challenges in sustainability

information management. The result showed low disclosures in qualitative forms. Environmental content disclosure tend to be general, declarative and positive in a study on Chinese listed firms (Situ & Tilt, 2012). The exploration of the extent and nature of sustainability information adoption and disclosure by large Chinese firms was the main aim of the research work. Being a centralized system it was discovered that the Chinese government played important roles in sustainability disclosure.

Tilt and Symes (1999) observed that from past research on sustainability reporting, mining companies disclosed more than other industries. In an extended work on increased sustainability disclosure Tilt and Symes (1999), provided an alternative interpretation for sustainability reporting by some companies. Making use of secondary data analysed through content analysis, it was discovered that mining companies mostly disclosed rehabilitation (qualitative) of individuals and mine sites, mainly influenced not by the desire to be environmentally conscious but by a resultant tax benefit by including it in the annual accounts. This may have implications for economies with similar industries and tax provisions to that of Australia.

In summary, studies being conducted in the non-oil and gas sector are mostly based on content or conceptual analysis of literatures on the subject matter as opposed to the use of quantitative analytical tools. This could be due the qualitative nature of disclosure that dominates reporting in the sector (Hossain, Islam & Andrew, 2006; Sumiani *et al.*, 2007; Tilt & Symes, 1999). Due to the fact that most sustainability reporting studies are spread over the entire economy it is hard to single out works that have been done exclusively in other sectors other than the mining (oil and gas) sector. Although disclosure of sustainability information is very low in other environmentally sensitive sectors, they can hardly be noticed because of their political insensitivity (Hossain *et al.*, 2006; Othman & Ameer, 2010; Sumiani *et al.*, 2007). It is also

common for most of the researches in environmentally sensitive firms to use secondary data. Moreover, figures showing damages done by pollution on the environment are hardly produced by these studies.

### **2.8.2 Environmental Policy Instruments in the Non-Oil & Gas Sector of Nigeria**

Environmental policies in Nigeria are aimed at defining framework for environmental governance in Nigeria. Major policy instruments of the Nigerian government include (FME, 2013):

- a. The National Forest Policy
- b. The National Drought and Desertification Policy
- c. National Policy Guidelines on Sanitary Inspection of Premises
- d. National Policy Guidelines on Solid Waste Management
- e. National Policy Guidelines on School Sanitation
- f. National Policy Guidelines on Pest and Vector Control
- g. National Policy Guidelines on Market and Sewage Management
- h. National Policy Guidelines on Food Sanitation

The Federal Ministry of Environment (FME) in pursuance of its mission, vision and objectives of ensuring environmental protection and conservation of natural resources for sustainable development, have embarked on major environmental initiatives in conjunction with partners such as the World Bank, International Development Agency (IDA), United Nations Development Program (UNDP) and Ecological Fund Office (EFO) (ELEX, 1999; FME, 2013). Areas of concern with regard to environmental challenges include effective waste management, reclamation and rehabilitation of degraded land, biodiversity conservation, ecotourism, effective environmental governance, and mitigating the effects of climate

change. FME (2013) outlined the major environmental initiatives like The Great Green Wall (GGW), Nigeria Erosion & Watershed Management Project (NEWMAP), Rural Women Empowerment Scheme (RWES), Integrated Waste Management Facility, and Millennium Development Goals (MDG).

#### **2.8.2.1 Nigerian Erosion and Watershed Management Project (NEWMAP)**

NEWMAP is a federal government program aimed at securing greater environmental and economic security. Supported by the World Bank NEWMAP work towards reducing vulnerability to soil erosion in major areas where infrastructure, livelihoods, and environmental assets are threatened. The seven endangered States targeted are Abia, Anambra, Cross Rivers, Ebonyi, Edo, Enugu, and Imo States.

#### **2.8.2.2 Great Green Wall Initiative (GGWI)**

This project aimed at planting trees in Africa across a belt that stretches along the southern edge of the Sahara Desert (FMOE, 2013<sup>b</sup>) to prevent desert encroachment. Moreover, the vision of the GGWI has evolved into that of addressing social, economic, and environmental challenges facing the people in the Sahara and Sahel Savannah. The overall objective of this program is to:

- a. Encourage rural development.
- b. Strengthened the resilience of the region's people and natural systems.
- c. Protect rural heritage.
- d. Improve the living conditions of the inhabitants.

Targeted States for this project include Adamawa, Gombe, Bauchi, Borno, Kebbi, Kano, Sokoto, Jigawa, Katsina, Yobe, and Zamfara.

### **2.8.2.3 Nigerian Integrated Waste Management Facility (NIWMF)**

It is open for everyone to see how poorly waste is managed in Nigeria. In urban cities like Lagos, Ibadan, Kano, Kaduna, Sokoto, Enugu, Port Harcourt, to name but few, inhabitants are familiar with symptoms of poor waste management in the country. Polyline wastes from packaged water littered the environment in addition to untreated garbage dumps found along roadsides. To achieve effective waste management the Ministry have established an Ozone village, the installation of waste management equipment“ and water recycling plants and the installation of gas-flared incinerators.

### **2.8.2.4 Clean Energy Initiative (CEI)**

The aim of this initiative is to reduce the impact on climate change. Under this scheme, dependence on forest products like firewood was reduced and children, youth, and women were empowered. To this effect, the country has seen the establishment of two solar centres in Kwara State, the registration of over 900,000 women for the Rural Women Energy Security (RUWES) program and the provision of 2,150 Wonder Bags and other solar powered kits (FME, 2013).

## **2.9 Environmental Effects of Petroleum Mining in the Niger Delta**

The negative impacts of oil production in the Niger Delta are more than any positive impact oil & gas exploration and mining companies might have on the host, local and immediate communities. Asaolu *et al.* (2011), ascertain that neither the multinationals nor the federal government have done enough to develop the people



and the environment where massive exploitation of oil and gas is done. The impacts of oil production range from environmental, to social, political and down to security and economic problems.

Of all the impacts of petroleum exploitation in Nigeria, the most dangerous ones are oil spillage and gas flaring. Kadafa (2012) estimated that between 9 million and 13 million barrels of oil have been spilled in the Niger Delta over the last 50 years. This estimate is about 50 times the Alaska spillage of 1989. These Oil spillages have the effect of polluting the aquatic environment and mangrove swamps (Hope for Niger Delta, 2010; Tolulope, 2004; Ukoli, 2005). Moreover, the operations of oil & gas companies in Nigeria have seen oil spillages that have caused serious ecological damages like the spillages at Farcados estuary in 1979, the Funiwa field, the Oyakama spillage in 1980, Oshika village in 1983, the Etiama Nembe spillage in 1995 and many others (Kadafa, 2012).

In the 20-year period spanning between 1976 and 1996 SPDC alone is reported by Kadafa (2012), to have caused about 4,647 Oil spill incidents of which 77% remain unrecovered. Natufe (2001) and Twumasi and Merem (2006) attested that most of these spillages are on land, swamp, and offshore environment thereby making them unproductive and causing misery for the locals whose livelihood depends on the natural habitat for their survival. Some of these spillage incidents were even acknowledge by the multinationals themselves. SPDC for instance, in a brief in 1995 accepted to have recorded some 115 incidences of oil spillages of which only 14.2% were recovered (Kadafa, 2012; Natufe, 2001; US Energy Information Administration, 2013). ExxonMobil also spilled about 40,000 barrels of crude materials in 1998 in Eket. However, Nigeria's largest oil spillage according to Kadafa (2012) was an offshore spillage into the Atlantic Ocean in 1980 releasing an

estimated 200,000 barrels of crude oil, which destroyed about 3.4 km<sup>2</sup> of land. Moreover, there are now oil fields and installations (especially in Ogoni land) that remains dormant, lack of maintenance, oil trapping, and damages to infrastructure without any remediation.

Gas flaring as already observed is also one of the serious environmental pollutant in the Niger Delta. There are about 123 gas-flaring sites in the Niger Delta region. Ukoli (2005) estimated that 84.60% of gas produced by companies in the region is flared. The work of Ayoola and Olasanmi (2013) and Kadafa (2012), showed that 45.8 billion kilo watts of heat is being discharged every day in the atmosphere giving rise to soaring temperatures and humidity and making the environment inhabitable. In addition, leakages of natural gas has also contributed to the destruction of the natural habitat. The 2004 Okrika mangrove forest Nigerian Liquefied Natural Gas (NLNG) pipeline leakage that burnt for three days is still fresh in the minds of the local communities with its devastating impact on the ecosystem (Kadafa, 2012). Due to the high air pollution championed by gas flaring, acid rains are a common occurrence. Gas flaring has also killed most of the vegetation, reduced the once evergreen rainforest to a little better than grassland or scrubs and destroyed food-crops.

The release of toxic elements into the air and soil also causes human diseases like tuberculosis, respiratory problems, cancer, “kidney diseases, neurological diseases and potential death” to quote Ndubusi and Asia (2007). Above all gas flaring in the Niger Delta if not quickly checked could be Africa’s major contribution to global warming due to the high level of GHGs being emitted in the Niger Delta. The negative attitude of the authorities towards environmental problems in the Niger Delta was summarized by Offiong (2000) thus: “Environmental problems in Nigeria are

very critical because economic and political problems take centre stage. In their national discuss, environmental pollution is yet to be seen as a problem”.

In addition to oil spillage and gas flaring Offiong (2000), also pointed out that problems like killings by State agents, desecration of sacred sites, neglect and impoverishment of its people, official negligence, aged and archaic facilities, greed of contractors and company officials, sabotage of pipelines, and the negligent and unimpressive behaviours from government and company officials are some of the major hindrances to development in the Niger Delta region.

## **2.10 Sustainability Reporting and Accounting**

God have set an equitable balance in the ecosystem among the bio-diversities existing in an environment. It is a fact that a relationship ranging from symbiosis to parasitic exists between plants, animals, and microorganisms. A depletion of one element that forms the food chain of an ecosystem may pose serious threat to the survival of other elements. It is often said that nature is never destroyed. As man depends on plants and other animals for his survival, plants feed on nutrients provided by decomposed organic matter to help them grow. Basic scientific knowledge shows that while plants take in carbon dioxide and give our oxygen during respiration, animals do the opposite. In short, there is complete interdependent between the different elements that constitutes the ecosystem and no individual element or specie within the system can claim monopoly of dominance on survival.

In his bid to strive for survival and outshine, man has caused serious imbalance in the ecosystem due to selfishness and sometimes greed. Apart from destroying the ecosystem, man’s productive (economic) ventures have also forced

changes in climatic conditions. Realization of this and pressure from concerned environmentalists, such as Rachel Carson (who questioned man's industrialized impact on the environment in 1962); led to the first UN Conference on the Environment in Stockholm in 1972 which later established the Brundtland Commission/WCED (IISD, 2013; Malarvizhi & Yadav, 2009). The Commission's report in 1987 for the first time came with the term "Sustainable Development", a term it describes as development that seeks to meet the needs of the present generation without compromising the ability of future generations to meet their needs. While the term seemed unique and distinctive it enhances two basic phenomena: social accounting and sustainability accounting. Thus marking the official beginning of nonfinancial reporting.

Concern about social and environmental themes are what gave birth to CSR which, in turn led to nonfinancial reporting (Mbat *et al.*, 2013). Today, business organizations the world over have become aware of the significance of sustainability issues to the extent that voluntary disclosure is now being gradually replaced by mandatory disclosure (Buniamin, 2010). Moreover, environmentally sensitive companies (especially in developed economies) are doing all they could to comply with appropriate standards or legislations. Rahman *et al.* (2010) observed that there are three ways businesses can disclose their social and sustainability information. These ways can however, be broadly classified into two, which are financial and nonfinancial. The financial method deals with the monetary cost and benefit of social and environmental impacts, while the nonfinancial method is in qualitative form (descriptive, pictorial, or diagrammatical/statistical depictions). Nonfinancial reporting as asserted by Rahman *et al.* (2010) are disclosures that are mostly narrative or pictorial in nature.

Aquino (2009) sees nonfinancial reporting as that which covers the many environmental themes and is contained in the annual report of business enterprises and made at the discretion of management. He stresses that nonfinancial disclosures are a way of informing stakeholders (especially host communities, society, governments, accounting professionals and standard-setting bodies) about social and environmental themes and practices being implemented by corporate bodies.

## **2.11 Factors Influencing Sustainability Reporting (Determinants)**

Adams (2004) and Haider (2010) grouped the factors that influence sustainability reporting into three categories:

- a. Corporate Characteristics
- b. General Contextual factors
- c. Internal Contextual factors

### **2.11.1 Corporate Characteristics**

The major factors that affect sustainability information disclosure include corporate characteristics. Haider (2010), disclosed that results have been inconclusive on the relationship between company characteristics like company size, company age, ownership pattern, Board independence, influence of creditors, multiple exchange listing, etc. While some studies found significant and positive relationship, others showed negative or even insignificant relationship. Corporate characteristics in the form of financial performance, company size, ownership pattern, company type, Board independence, company age, etc.; have been covered by different studies with different results (Haider, 2010). Haider (2010), in his review of corporate social and sustainability reporting in developing countries observed that it has already been

established that a significant influence of Board independence exists on sustainability reporting in Bangladesh. Some of the corporate characteristics discussed in this research include:

#### **2.11.1.1 Firm Size**

Ahmad *et al.*, (2003) argued that firm size is a very important variable that determines a company's competitive advantage, information production costs, political costs, and good citizenship. Their study showed an inverse relationship using the agency theory. Haddock-Fraser and Fraser (2008), Ismail and Ibrahim (2009) and Stanny and Ely (2008) using OLS regression and content analysis in determining the degree of reporting from their research, stated that there exists a positive relationship between firms' size and sustainability information disclosure. Patten (2002) however, discovered that firm size although significant might not be critical in influencing corporate sustainability reporting. On the other hand, Monteiro and Aibar-Guzman (2010) stated that bigger firms disclose more sustainability information than smaller ones. One of the reasons for this could be that bigger firms attract more attention and pressure from stakeholders (Monteiro & Aibar-Guzman, 2010; Udayasankar, 2008). In addition to this as suggested by Frith (1979) and Wong and Fryxell (2004) bigger firms have an image to protect through disclosure of sustainability information and above all, sustainability disclosure itself is a very expensive undertaking. Unlike small and medium scale businesses, larger firms have both the economic wherewithal and technical resources to embark on a better sustainability reporting (Monteiro & Aibar-Guzman, 2010).

Firth (1979), Trotman and Brandley (1981) and Watts and Zimmerman (1986) all found a direct relationship between company size and social responsibility

disclosure. Andrikopoulos and Kriklani (2013) and Cormier and Morgan (1999), also obtained the same result in their evaluation of sustainability reporting in markets using regression and descriptive statistics. Proponents of this discovery are of the view that bigger firms have higher political cost because they are more visible in the eyes of the public and their actions may attract more resentment due to their higher asset base (Ahmad *et al.*, 2003). To buttress this argument is the fact that bigger firm possesses competitive advantage, access to information and economies of scale. Therefore, to demonstrate good citizenship they must make increased social responsibility disclosure. Managers of such companies therefore, choose to disclose more on social and sustainability issues so as to reduce their political costs. All the firms used in these studies cover those listed with no distinction made between environmentally sensitive and non-environmentally sensitive or environmentally insensitive ones.

#### **2.11.1.2 Financial Leverage**

Financial leverage constitutes part of the capital structure of business organizations. Discoveries made on the relationship between financial leverage and sustainability reporting has been contradictory with hardly any consensus (Ahmad *et al.*, 2003; Akbas, 2014). While some studies have shown positive relationships, others have shown negative relationship between financial leverage and sustainability reporting. Most predictions have shown that for monitoring purposes firms with higher financial leverage disclose more on social and sustainability issues (Ahmad *et al.*, 2003; Andrikopoulos & Kriklani, 2013). Management may disclose sustainability information for monitoring purposes if the firm's leverage is very high (Ahmad *et al.*, 2003; LeBrun, 2016; Reference.com, 2016). There is also the need according to

Malone, Fries and Jones (1993), to serve the interest of long-term creditors and to remove any suspicion of debt holders regarding wealth transfer (Myers, 1977). Where a firm's capital structure is heavily debt laden or financing, studies have shown that disclosure on sustainability development may be reduced (Smith *et al.*, 2007). However, Smith *et al.*, (2007) and Uwuigbe (2012), who tried to differentiate between financial and nonfinancial firm's sustainability disclosure with the t-test; found a negative relationship between financial leverage and sustainability disclosure. Furthermore, the relationship between financial leverage and sustainability reporting is insignificant as seen from the result of the work of Smith *et al.*, (2007), but to attract more foreign investments high financial leverage firms may be tempted to disclose more (Aboody, Barth & Kasznik, 2004).

It is common belief that to satisfy long-term creditors and remove suspicion, more disclosures need to be made. However, Ahmad *et al.* (2003), Uwuigbe, Ranti and Sunday, (2014) and Vakilifard, Gerayli, Yanesari and Ma'atoofti, (2014) found a direct relationship between financial leverage and duality. This finding is significant for the Capital Need theory as creditors (long-term), needs a yardstick to monitor debtor's financial status with the hope of assessing the risks involved. The gap on studies of this variable is that it has never shown the role of foreign investment.

### **2.11.1.3 Market-to-Book Value Ratio**

Market-to-Book value is highly determine by the economic conditions and accounting methods applied (Bewley, 2005; Peavler, 2016; Zacks, 2016). The method of accounting for cost varies from industry to industry. What operates in the oil & gas industry may be different from what operates in the manufacturing and mining sectors. The market value is considered for this research to be the benchmark



index level for the NSE. Brammer and Pavelin (2006) and Moneva and Llena (2000) discovered that a relationship exists between sustainability reporting and market valuation. When there are large variations between book value and market value of a firm's capital, the firm's worth is then assumed to be the future prospect of the company (Andrikopoulos & Krikilani, 2013; Matsumura, Prakash, & Vera-Munoz, 2014). Such future prospect could be a firm's sustainability disclosure (Becchetti & Ciciretti, 2009; Plumlee, Brown, Hayes & Marshall, 2010). The relationship between sustainability reporting and Market-to-Book value ratio according to some sources is not linear as market value measures long-term returns (Connelly & Limpaphayom, 2004).

The book value of a firm and owners' equity significantly and positively influence sustainability disclosure on annual accounts of firms says Cortez (2011), in his testing for a firm's relationship between the market value and financial performance. This is because the market likes it when companies engaged in environmental innovative practices. Increase in stock price automatically increases book value (nominal value). In a separate development Hassel, Nilsson and Nyquist (2005), explained that the market value could be a measure of the future present value of returns on equity. Their disclosures have the effect of reducing firm's uncertainty on the part of the investor and simultaneously reducing cost of capital; thus increasing a firm's market value.

#### **2.11.1.4 Foreign Ownership Concentration**

The concept of foreign ownership concentration is very significant as it defines "the contribution of residual claims and decision control that has consequences on firm behaviour" (Altunbaş, Kara & van Rixtel, 2007; Delgado-

Garcia, Quevedo-Puente, & Fuente-Sabate, 2010). Foreign ownership concentration has been observed by different authors from different perspective. It could be seen as the division of the BOD between shareholders and independent management personnel (Jensen & Meckling, 1976). Others has seen it as the concept of ownership which dwells on the number of stocks owned by individual investors and large block of shareholders (at least 5% of Equity). Most times foreign ownership concentration is defined by the distribution of equity concerning voting rights, capital invested, and identity of shareholders (Jensen & Meckling, 1976). In general-terms however, foreign ownership concentration is talking about the interest of shareholders in the firm. The total number of shares held by a shareholder dictates the need for him to be a board member thus having influence and control over the affairs of the company.

Various types of foreign ownership concentration exist with different classifications ranging from domestic to universal levels. The Domestic (Relational) and Foreign (Transactional) classification views the concept from the citizenship perspective emphasizing on foreign and local investments. Based on Management perspective there exists management ownership, concentrated ownership and institutional ownership types. Managerial ownership defines a structure that takes cognizance of the interest of the owners (Alves, 2012). Alves (2012), also posit that this helps in maximizing profit and improve firm value and decreases the manipulation of earnings (Alves, 2012). However, it may lead to the pursuance of personal rather than stakeholders' interest. Concentrated ownership is the type of ownership that vested control in the hands of large shareholders (Alves, 2012). This type of ownership is very effective and it reduces costs and the pressure of meeting earnings expectation. Institutional ownership is a type of foreign ownership concentration that depicts ownership by institutions, agencies or organizations. For

example, pension funds, mutual funds, banks, financial institutions, etc. This type of ownership is not only effective and efficient, but also reduces manipulation especially where the financial institution is the main creditor to the business. However, their investment is unreliable as they can easily pull out by selling it to others.

Based on the number of shareholders, foreign ownership concentration has been classified into sole proprietorship, partnership, limited liability companies, corporations, cooperatives, etc. There has also been classification based on dominant shares held. This has been divided into board ownership and Top ownership. Finally based on the nature of investment, foreign ownership concentration can also be classified into private and public foreign ownership concentration thus leading to more of executive (private) or non-executive (public) members of the board of directors. Higher level of foreign ownership concentration suggests stronger minority power over managerial appointments and managerial decisions (Grenoble, 2010). To protect their interest shareholders need to closely monitor management, by having a direct or dominant presence in the BOD to ensure accurate, reliable, and complete reporting (Alves, 2012).

Studies on foreign ownership concentration have been related with various concepts like earnings management, emerging markets, cost of debt, corporate reputation, corporate diversification, firm performance, governance, firm economic growth, capital structure, to name but few (Al-Farooque, 2012; Alves, 2012; de Jorge & Laborda, 2011; Feyzi, Aslan & Kumar, 2012; Kangarlouei, Soleymani & Motavassel 2013; Kapopoulos & Lazaretou, 2009; Lappalainen & Nishanen, 2009; Mangena, Tauringana & Chamisa, 2012; Maquieira, Espinosa & Vieito, 2012; Prado-Lorenzo, Gallego-Alvarez & Garcia-Sanchez, 2009; Shabbier, Tahir & Aziz, 2013).

Using panel data Alves (2012) discovered an inverse relationship between earnings and foreign ownership concentration among Portuguese firms. In recent times, researches on foreign ownership concentration have targeted the effectiveness of shareholder ownership in the context of “agency conflict” between majority shareholder and minority interest (Al-Farooque, 2010; Aslan & Kumar, 2012). The work of Fauzi and Locke (2012) and Feyzi, Kangarlouei, Soleymani and Motavassel (2013), investigated the role of board structure on firm performance. Many of the studies carried out have concentrated on using mostly secondary data and regression as the main analytical tool. The variable have also seen frameworks being built on the relationships between foreign ownership concentration and independent variables like earnings management, market-to-book value, corporate reputation, profitability, growth, diversification, capital structure (Pindado & De La Torre, 2011) and dividend policy.

Consensus arrived at by studies suggest no support for reducing Top1 shareholder ownership, and that an inverse relationship between earnings management and Top1 foreign ownership concentration with high cost on debt (Al-Farooque, 2010; Alves, 2012). Top1 ownership concentration is the largest shareholder of a firm. Delgado-Gacia, Quevedo-Puente and Fuente-Sabate (2010), also discovered that concentrated power in the hands of large shareholders is good for corporate reputation but when such powers are concentrated in hands of transnational corporations (TNC), much concern would be given to growth than to profitability (David, O’Brien, Yoshikawa & Delios, 2010). Feyzi, Kangarlouei, Soleymani, and Motavassel (2013), argued that foreign ownership concentration does not affect firm’s value though firm size and investment opportunities can influence it positively. An environment with large numbers of private investment is associated with a high per

capital growth rate. There is also a direct relationship that exists between foreign ownership concentration and firm mobility and there is an interaction between management ownership and foreign ownership concentration (De Jorge & Laborda, 2011; Pindado & De La Torre, 2011). Perhaps of great interest is the result that the power of foreign ownership concentration on corporate social responsibility is “quite limited” (Prado-Lorenzo *et al.*, 2009). Shabbier, Tahir, and Aziz (2013) discovered an inverse relationship between dividend payment and foreign ownership concentration.

Multinationals that are mostly foreign-owned are expected to disclose more on sustainability issues (Monteiro & Aibar-Guzman, 2010). However, it has been observed that the national background, environmental values, and environmental laws operating in the motherland of foreign owned firms, influence the extent of their disclosure with regard to foreign ownership concentration (Freeman & Jaggi, 2005). Gray *et al.*, (1996) however, argued that a firm’s sustainability disclosure is influenced by the behaviour of its subsidiaries in relation to sustainability information disclosed. In a study conducted on countries that have ratified the Kyoto Protocol Freeman and Jaggi (2005), came out with a result that showed that sustainability disclosure by subsidiaries are greatly affected by parent company’s disclosures. More specifically, firms from developed and advanced economies disclose more on sustainability issues. This is mainly due to the operation of pressure groups and stakeholders in these economies (Monteiro & Aibar-Guzman, 2010). Monitoring by different owners dictates the level of disclosure to boost investor’s confidence (Andrikopoulos & Kriklani, 2013; El-Gazzar *et al.*, 2006). Furthermore, result from their study showed a significant relationship between foreign ownership concentration and sustainability disclosure.

The fact that most of previous researches have laid emphasis on investigating separately the different types of foreign ownership concentration makes it difficult to pinpoint the combined effects of foreign ownership concentration. In the application of measurement of variables, different measurements were used though some studies used non-scientific methods of analysis (David, O'Brien, Yoshikawa & Delios, 2010). However, regression seem to be the common tool of analysis that has been applied by most authors to determine relationships between different variables. Fauzi and Locke (2012), Lappalainen and Nishanen, (2009) and Mangena *et al.*, (2012) concentrated their work on a single country and heavily depended on the stakeholder theory. Hardly did any of the studies makes a direct investigation on the relationship between foreign ownership concentration and sustainability reporting. However, this research is expected to view foreign ownership concentration not from the traditional angle of "biggest" shareholder perspective (Institutional ownership) but from the "citizenship" perspective (Foreign and Local or local foreign ownership concentration).

### **2.11.2 General Contextual Factors**

The general contextual factor refers to the context within which the business operates. Basing his work on the political economy theory Haider (2010), figured factors like country of origin, culture, political, civil and legal systems, level of development, etc.; all play a role in influencing sustainability reporting. Country of origin proves very important as it gives a significant relationship with sustainability reporting. Culture and religion also greatly influences sustainability reporting. Economic development has positive relationship with sustainability reporting. However, the more highly develop an economy is the higher they comply with sustainability reporting (Haider, 2010). Politics, government, legality, etc. have all

been known to have significant relationship with sustainability reporting. These factors include:

#### **2.11.2.1 Nigerian Stock Exchange (NSE)**

This variable is built on both the institutional and capital need theories. The requirement of the NSE in relation to the type and quality of information to be disclosed is set out by the SEC. The NSE is a new member of UNSSEI. The implication is that prior to 31<sup>st</sup> October 2013, the NSE have no environmental policy of listing on sustainability reporting. However, the significant role expected of it can be seen from the following statements (SSE, 2013).

Stock exchanges are well positioned to play a crucial role in facilitating more sustainable financial markets, promoting improved corporate performance on environment, social and governance issues, and promoting investment to help meet the expected UN sustainable development goals. The UN Sustainable Stock Exchange Initiative brings together Exchanges, policy makers and other key stakeholders to help them collaborate to this end, (SSE, 2013 Report on Progress: v).

The initiative either helps in promoting sustainability reporting by corporate bodies or provides guidance and training on environment, social and governance (ESG) issues and producing sustainable investment products (UN SSEI, 2014). About  $\frac{3}{4}$  of UNSSEI member stock exchanges require  $\frac{2}{3}$ <sup>rd</sup> or more of the items listed by the UNCTD to be disclosed as part of listing requirement. In most countries, the disclosures were explicit and direct. According to UNSSEI (2014), report shows that over 40% of exchanges offer at least one index that integrates sustainability issues, while around  $\frac{1}{3}$  of the exchanges provide sustainability reporting guidance and

training to listed companies. However, only 21.82% of the 55 exchanges require some aspect of sustainability reporting from its companies (UNSSEI, 2014).

Nigeria being a new member is slowly planning for the effective take off by the NSE. Nonetheless, the more stringent the rules are on sustainability disclosure, the more companies will disclose to enable their stocks being quoted on the NSE (Monteiro & Aibar-Guzman, 2010). In the course of this research, a special measurement scale called mean value index (Hossain, Islam & Andrew, 2006) was created and used to measure sustainability disclosure in the NSE for the periods observed because of the new membership of the NSE. This index seeks to verify whether 2/3<sup>rd</sup> disclosure of items listed has been made. Unlike stock exchanges in developed economies like US, Canada, UK, etc., the NSE like its counterpart in Portugal, does not require any sustainability disclosure for listing (Monteiro & Aibar-Guzman, 2010) prior to the year 2013. The “growing interest and increasing demand of investors” on sustainability information could force companies to disclose more on sustainability issues. The belief of Monteiro and Aibar-Guzman (2010) whose work was based on determinants of sustainability reporting disclosures is that firms listed in the stock exchange disclose more sustainability information than those not listed.

#### **2.11.2.2 Department of Petroleum Resources (DPR)**

DPR seeks compliance by companies in the oil & gas industry on health, safety, and environmental laws for the industry. DPR is actually an enforceable body of applicable environmental laws and effective regulatory oversight of the oil & gas industry (Osu, 2012). The agency has been empowered by law to oversee all sustainability issues in the oil & gas industry. A one-time Director of the organization Mr. Osten Olurunsola, stated that in the area of health, safety and environment, six



offshore safety centres of international standards have been put in place and the Safety Permit program system established (Osu, 2014).

The safety operation of companies in the industry is very difficult to monitor especially those operating offshore. In one instance, Ikpe (2012) claimed that it was reported that some individuals misled two local companies to bury hazardous waste rather than disposing them through approved methods. It is based on this that a former Minister of Petroleum Resources (Mrs. Alison Diezeni-Madueke), pointed areas where effective “regulatory control and monitoring has been entrenched” (Osu, 2011). They include gas-flare penalty (\$3.50/1000scf), launch of offshore safety permits, and the completion of the National Production and Monitoring Systems (NPMS).

The important thing about environmental institutions like DPR in terms of sustainability disclosures is that effective monitoring and enforcement of sustainability standards and regulations in the industry would lead to more and better sustainability disclosure (Cavanagh, Hahn, & Stavins, 2001; Salewicz, 1997). Improper monitoring however, may lead to less or no disclosure at all, on sustainability issues. Being the only body in the country responsible for this, information about its operation could only be obtained from it.

### **2.11.2.3 NESREA**

NESREA is an agency of the Federal Ministry of Environment. It is responsible for enforcing laws, regulations, and standards in deterring individuals and business organizations from polluting and degrading the Nigerian environment with the exception of the upstream and midstream sectors of the oil & gas industry, which is under the jurisdiction of the DPR. Its major responsibility includes the protection

and development of the nation's environment, biodiversity, conservation and sustainable development of Nigeria. The agency encourages environmental technology through coordination and liaison with partners globally to enforce environmental standards, rules, regulations, laws, policies and guidelines. The more these objectives are upheld the better the disclosure of sustainability information.

#### **2.11.2.4 Environmental Experts**

Professionals and people knowledgeable in environmental management are necessary for efficient policies in environmental management. For example, an environmental impact assessment team needs to performance a feasibility study or assessment before projects could be implemented. The environmental expert in the management team is a major contributor towards environmental sensitivity in an organization (Lodhia, 2003). There should be a significantly structured approach in implementing Environmental Management (Cost) Accounting (EMA/ECA). EMA aids in waste minimization and energy efficiency schemes (Scavone, 2006; Sulaiman & Mokhtar, 2012). In determining the relationship between EMA and sustainability disclosure, Sulaiman and Mokhtar (2012) used primary data to discover that companies with EMA disclosed more. The emergence of EMA is concurrent with the need of companies to satisfactorily provide stakeholders with environmental related information (\_\_\_\_, 2016; Burritt, Hahn & Schaltegger, 2002; CAPPETTA, 2014). This will help make up for the absence of sustainability issues in conventional accounting.

Being a relatively new concept, EMA systems have not gained wider acceptance within the conventional accounting system (Lee, 2011). In developing economies like South Korea however, companies such as Samsung Electronics, LG

Chemicals, Pasco, etc. have adopted EMA for internal decision-making process. Lee (2011) stated that EMA guidelines classified EMC into pollution treatment activity costs, pollution preservation activity costs, stakeholder's activity costs and legal compliance and remediation activity costs. An expert knowledgeable in environmental, management and accounting issues should head such department in the organization and must be part of the management team. In this way his/her presence in the team will make way for efficient, smooth and effective sustainability information disclosure by guiding and reminding management of its environmental responsibilities.

Lee (2011) whose study targeted factors that facilitate the implementation of environmental cost accounting through survey, reveals that although 68.2% of organizations in his native South Korea are aware of EMA or EMC only 23.6% of them are implementing it. This shows that only about 24% of organizations are making sustainability disclosure with the help of experts. These organizations however, make use of EMA for decision-making purposes. In the research of Sulaiman and Mokhtar (2012), the result showed that only eight out of the 19 companies observed have proper accounting system to handle sustainability issues. Those with such a system in place tend to disclose more on sustainability issues. Their study discovered that most organizations agreed with the idea of a proper EMA system in place to enhance the generation of sustainability information. This should not however, serve as justification for imposing such a system on industries whose activities does not impact severely on the environment. Li (2004) found that lack of proper measurement of sustainability information might lead to non-disclosure of sustainability information.

### **2.11.2.5 Industrial Type**

Being the only control variable of this research, the type of an industry to a large extent defines its pollution impact. Heavy industries are more likely to have high impact on the environment than lighter ones. Past studies have revealed mixed results on the relationship between industrial type and disclosures. Ahmad *et al.*, (2003), Ismail and Ibrahim (2009) and Smith *et al.*, (2007) discovered a positive relationship with no significance in their study. In another study, Akbas (2014) came up with a positive and significant relationship. This research intends to examine the relationship between industrial type and sustainability information disclosure by environmentally sensitive companies. In the context of this research, industrial type was classed based on the different sectors in the population of this research. These include agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil & gas.

### **2.11.3 Internal Contextual Factors**

The internal contextual factors are about the internal factors affecting a business" operation. Internal contextual factors include the reporting process and people"s attitude (Haider, 2010). Haider (2010) showed how past studies have yield mixed results. Some show a significant relationship on sustainability reporting. However, company age, Board independence, exchange listing gives insignificant relationship. He pointed out that there had been discoveries of positive relationship between company size and sustainability reporting. He also reported a positive relationship between ownership and sustainability reporting compared to Rashid and Lodh"s (2008) insignificant relationship. The effects of ownership on sustainability reporting are weak as discovered by Liu & Anbumozhi (2009). The results of Hanifa

and Cook (2005) pointed to a significant relationship between executive (dominated) boards, multiple directorship, and ownership. Corporate governance, leadership attitude, stakeholder pressure, cost-benefit, etc. are also internal contextual factors that are significant and show positive relationship with sustainability reporting.

These studies however, never targeted environmental policy administrators collectively nor are they based exclusively on the environmentally sensitive sectors. However, the major internal contextual factors of sustainability reporting in the Nigerian context are discussed below.

### **2.11.3.1 Board Independence**

Board independence for the purpose of this research work, is defined as a ratio of non-executive to total executive Directors. Non-executive Directors are more independent and reliable and serves as an instrument of diffusing agency conflict between management and owners (Barako, Hancock & Izan, 2006). Independent members of the BOD are less aligned to shareholders and therefore, may encourage firms to disclose more on sustainability information (Cheng, Evans III & Nagarajan, 2008; Eng & Mak, 2003; PwC, 2016). Where the CEO is independent of both board members and shareholders, studies have shown that a positive relationship exists between independent Directors and disclosure (Chen & Jaggi, 2000). Independent members of the board are regarded as effective monitoring tools on management's behaviour resulting in more disclosure (Ho & Wong, 2001). The larger the number of independent members in the board, the higher the disclosure.

According to Ionel-Alin (2008), Executive managers are employees of the company with a direct role in its management while non-executive managers have no

direct role in running the company but have an independent monitoring role on the company's management. An independent CEO may eliminate or reduce conflict of interest between shareholders and management and allows objectivity to prevail (Solomon, 2007). Hence, non-executive members are capable of rationally analysing the financial and economic operations of the organization. In a study of corporate governance and voluntary disclosure Eng and Mak (2003) and Gul and Leung (2002), discovered a significant but inverse relationship between disclosure and non-executive Directors. As independent members, they represent all stakeholders and with this stand a chance of influencing the reporting of environmental performance (Haniffa & Cooke, 2002). The report of Donnelly and Mulcahy (2008), showed a positive relationship between non-executive members and the level of reporting even though Barako, Hancock and Izan's (2006) study based on the agency theory and using OLS regression reflects a negative association between voluntary disclosures and non-executive managers. However, none of the studies so far has tested this variable with GRI-4.

### **2.11.3.2 Duality**

Effective disclosure on sustainability information of firms is determined by Board independence, independence and size (SEC Code, 2011). The more the members of a board are outsiders, the more likely the disclosure of sustainability information. The aspect of duality as depicted here implies being the Chairperson and the CEO of an organization. In this context, the aspect looks at the two key positions of a firm's Chairperson of the Board of Directors and a CEO (SEC Code, 2011). The same person is both the Chairman of the Board (a shareholder) and the Managing Director (CEO). Such positions are common in developing economies where they are

grossly abused. The significance of this is to see whether or not the concentration or otherwise of these positions in a single individual in anyway affects sustainability disclosure. There is support for the assertion that good environmental performance and long-term pay increase prevent success and pushes the pay of CEOs upward (Berrone & Gomez-Mejia, 2009; Sikes, 2013).

CEO duality is a principal aspect of Board independence (Barako *et al.*, 2006). This position is also significant as non-shareholder Directors acts as neutralizers in the event of conflicts between management and shareholders; thereby providing checks and balances on examining the association between board monitoring and voluntary disclosure (Chen & Jaggi, 2000; Cheng & Courtenay, 2006; Fama & Jensen, 1983; Haniffa & Cooke, 2002). For positive share value, tender offer bids, and management buyout announcements, CEO's who are not shareholders have played important roles (Brickley, Coles & Terry, 1994; Cormier, Gordon & Magnan, 2004; Cotter, Shivdasani & Zenner, 1997; Lee, Rosenstein, Rangan & Davidson, 1992). These vital roles played by non-shareholder Directors have greatly aided in the voluntary disclosure of sustainability information.

### **2.11.3.3 Board Size**

Board size depicts the total number of Board independence. This includes both executive and non-executive (independent) members. It is expected that the more members there are in the board, the more will sustainability information disclosure be made. The smaller the number of members in the board, the lesser the disclosure of sustainability information. John and Senbet (1998), agree that monitoring of board's operation increases with increase in membership of the board even though there was poorer communication among members and ineffective

decision-making. Of much significance is that there must be a limit to board size as too large a board with diverse opinion may encourage non-cohesiveness thus, diminishing its monitoring capability (Cheng & Courtenay, 2006). Cheng and Courtenay (2006) whose study looked at Board independence, regulatory regime and voluntary disclosure went further to assert that there is yet a theory to back up the relationship between voluntary disclosure and board size making it a major empirical issue. They found no association between board size and voluntary disclosures. Board structure also have a positive impact on firm performance (Fauzi & Locke, 2012; Lappalainen & Nishanen, 2009; Maquieira, Espinosa & Vieito, 2012).

## **2.12 A Critical Examination of Discoveries in Sustainability Reporting Relationships**

Acti-Ifurueze, Etale & Frank (2013), examined the relationship between environmental costs and corporate performance. Basing their study on the political theory, they were able to examine how environmental costs shaped corporate performance. Their work was a longitudinal study, which discovered that environmental cost has significant impact on corporate performance. Their definition of corporate performance was limited only to return on total assets and only three elements of environmental cost were discussed (community development, waste management and employee safety). Other elements like land reclamation, mitigation and employment creation were not discussed.

Sustainability reporting has advanced to the stage of being a strategic policy tool than a service to society (Betry & Rondinelli, 1998). It provides a means of proper management of the environment. Carol and Frost (2006) discovered low level of reporting on environmental performance. Their study was cross-sectional and no



corporate characteristics were used. On the other hand, Cleveland (2013) was more interested in factors that drive, influence, and affect environmental changes at both local and international levels. These factors include demographic, social science & technology, conflict and governance. Furthermore, he found out that disclosures do not always represent stakeholders' interest but management's value for particular group of stakeholders. Cormier *et al.* (2004), studied the relationship between management strategy on sustainability reporting and sustainability disclosure. Their discovery showed that it is management's perception more than any other factor that shaped a firm's disclosure strategy and that no internationally recognized standards were applied. The sample size they used was limited only to CEOs of selected firms in Europe and North America. Their generalization of any discovery was therefore, faulty.

Chukwubueze and Nnaomah (2012) and Dandago and Arugu (2014) assess the activities of oil companies on the people of the Niger Delta. Their result showed a negative relationship between firm's operation and the environment. Moreover, transnational corporations are largely driven by short-term personal interest than long-term developmental interest of the region. Dandago and Arugu (2014) advised that transnational corporations should embark on long-term goals. However, their study was more of a case study than an empirical research because it was limited to specific communities in the Niger Delta region.

Are changes in sustainability reporting due to voluntary disclosure or compliance with new economic legislation? A very interesting question put forward by Damak-Ayadi, (2010). He discovered that even new economic legislation did not go far enough to influence sustainability reporting. The analytical tools of descriptive statistics and content analysis looks rudimentary for a study of this nature. Using

annual reports and company characteristics as a variable, qualitative approach (technique) does not seem the right option to have embarked upon. In their study, Delmas and Blass (2010) measured the environmental friendliness of firms by classifying them into positive and negative screening. While positive screening firms are those that perform environmentally well, negative screening ones are those firms that did not perform environmentally well. They discovered that firms with lower economic performance produce quality environmental report. Their study was however, limited by the use of non-statistical measurements. Another work by Dong and Burritt's (2010) targeted the specific elements for sustainability disclosures in sustainability reporting. Their result was that most disclosures are positive. Detailed information on the quantification of targets was not provided and their study was restricted to only larger companies.

Other studies like deVilliers and van Staden (2011) looked at the medium of disclosure. Their study shows that stakeholders prefer the need for annual reports as a first option, seconded by disclosures on the website. Both should be done based on TBL as against stand-alone reports. Their research however, covered only Australian firms leaving out more advanced industrialized countries like the US, China, Japan, Germany, South Korea, etc. The work of Uwuigbe (2012) looked at the relationship between sustainability reporting and disclosure on the website. He discovered a positive relationship between disclosure on the website and firms' characteristics of financial performance. The major problem of this research was the size of the sample used. Thirty firms could hardly be used to justify any findings for generalization purposes. In another study, it was discovered that there was an increase in the number of environmental items disclosed on the internet when compared to those disclosed outside the website (Zhang, Gao & Zhang, 2007).

A research that looked at the relationship between the Fortune Global250 and sustainability reporting was carried out by Fortanier and Kolk (2014). They found out that the environmental report is more of projects undertaken than the impact of the projects on the immediate environment. The level of consistency, uniformity, environmental costs and revenue, and sustainability disclosures was examined by Fortes (2002) through various forms of sustainability reporting (stand-alone reports, annual financial reports, pictorial reports, narrative reports, statistical reports, monetary reports, graphical reports, and diagrammatical reports).

Gary (2007) also said sustainability reporting leads to accountability by firms and defined the rights and limitations of corporate bodies and stakeholders. His discovery also showed how civil society can play the role of “social auditors”. It has also been discovered that the internal control system of firms on sustainability reporting makes firms to be accountable and transparent (Ienciu, 2012). EMS influences voluntary disclosure on emission. The research, which was cross-sectional and non-statistical, came out with a result of a stagnant sustainability reporting (Ihlen & Roper, 2011). They also observed that most reports did not address modern sustainability problems like the need to attract investments (both foreign and local). Furthermore, their study did not use any corporate characteristics.

KPMG (2011) discovered that corporate sustainability is “adopting business strategies that meet the needs of the enterprise and its shareholders today while sustaining the resources (both human and natural) that will be needed in the future”. EMC and sustainability reporting guidelines are useful for managerial purposes (Lee, 2011). The EMC accounting system is however, limited by factors like the closing periods, non-monetary values, non-quantifiability of some information, and mismatch. The research was however, cross-sectional and no attempt was made to use corporate

performance variables. In another vein Lungu, Caraiani, Dascalu, and Guse (2010), looked at the role of risk reporting in sustainability reporting. They discovered the lack of a global standard for reporting risk and uncertainties in sustainability disclosures.

Mathews (2009), echoes the need for environmental standards stressing for a standard that will embrace economic, social, and sustainability information disclosures. He argued in favour of mega reporting, i.e. reporting that constitute all elements of sustainability (economic, environmental and social). The work has been criticized of being more of a review than an empirical research and that mega reporting is not different from TBL. An examination of the relationship between firms' market value and carbon emissions by Matsumura *et al.*, (2014), found an inverse relationship between gas emission and sustainability reporting. However, only one independent variable of "gas emission" was applied. Nigeria according to Mobbs (2014), accounts for 26% of Africa's and 2.8% of total world crude oil production as at 2012. The relationship between human operations and the environment has earlier been examined by Mobus (2011). This research used SOP96-1 standard, which does not command wide global acceptance, compared to GRI or ISO sustainability standards.

Enahoro (2009) explored and assesses sustainability accounting in the oil and gas and manufacturing sectors that have environmental impact in the Niger Delta area. The key aspect focussed upon was "effective and efficient environmental cost measurement" and reporting. His study applied both primary and secondary data as well as cross-sectional and longitudinal content analysis together with regression analysis. Among the major discoveries of the research were that environmental expenditure is not charged independently of other expenditures and that there is the

absence of a costing system to trace externality costs. He also discovered that disclosures are not uniform. As a result, he calls for the development of operating guidelines and standards, which focuses on environmental impact reduction. He also recommends for the proper definition of environmental costs and that the SEC should make sustainability reporting mandatory.

Moroney, Windsor, and Aw (2012) examined assurance services and sustainability reporting. The aim was to point out the difference between disclosures by audited reports and non-auditor reports. Sustainability reporting disclosure on audited reports is of higher quality than non-assurance reports irrespective of whether or not the assurer is any of the Big Four accounting firms. Investment decision and sustainability information disclosure was a study conducted by Rikhardsson and Holm (2008). Qualitative sustainability information affect short-term investment decisions (risk reduction) while quantitative information mitigate directional effects of sustainability information. In his study, Rondinelli (2006) concluded that a gap exists between the global recognition of sustainable development and business practice. The works of Rossi and Trequattrini (2010) looked at the development of a sustainability-reporting model that could be applicable to all levels of reporting (local, regional or national). The weakness of their study was that it covers only the Lazio Region of Italy. This may not have a universal application or generalization.

In brief, a critical observation of studies that covers relationships with sustainability disclosure have focussed mainly on individual or groups of MNCs (Alabi & Ntukekpo, 2012; Alfred, 2013; Asaolu, Ayoola, Agboola & Salamu, 2011; Ayoola & Olasanmi, 2013). However, attempt has been made in this research to look at the economic performance of corporate foreign ownership concentration in combination with three other independent variables to see their implication on

sustainability reporting. Most importantly, this research increases the independent variable to include environmental policy administrators, corporate financial performance, Board characteristics and foreign ownership concentration.

It was the researcher's intension to emphasize on institutional theory as the underpinning theory of this research, and the stakeholder, legitimacy and capital need theories as supporting theories. As already discussed in Chapter one, some investors are now going Green as could be seen from the actions of world class investors like Steven Heintz and Bill Gates. In Nigeria, there are regulatory and monitoring environmental institutions together with their regulations and standards on sustainability issues. The institutional theory is therefore, needed to measure the impact of these organizations on the environmental reports of Nigerian firms. A framework was therefore, developed on the administrative, economic, institutional and foreign ownership concentration relationships with sustainability reporting in environmentally sensitive industries in Nigeria.

### **2.13 The Nigerian Corporate Governance Code (2011) as it affects Sustainability Reporting**

From a broader perspective, corporate governance is about the mechanisms, relations, and processes via which a business organization is controlled and directed. It encompasses complementing the many interests of the stakeholders of a company. Wherever cooperate governance is weak, there is the likelihood of corporate failure. It must therefore be improved. This was the main reason why SEC in September 2008 inaugurated a committee to address the weaknesses of corporate governance in Nigeria and improve the mechanism for its enforceability (SEC Code, 2011). The 2011 Code of Corporate Governance for public companies in Nigeria which was born

out of this specifies ethical codes applicable to all listed firms in Nigeria (SEC Code, 2011). Of specific significance to sustainability issues contained in the Code as it affect this research, are the following provisions:

- a. Ensuring the maintenance of ethical standard and compliance with Nigerian laws [Sec. 3.1(i)(j)].
- b. Membership of the board of directors should not be less than five (Sec. 4.3) and a mix of executive and nonexecutive members (Sec. 4.3).
- c. Board members should possess relevant core competence. This is very important with regards to the inclusion of environmental experts as BOD members (Sec. 4.4).
- d. Members of the board should be independent of management (Sec. 4.5).
- e. Separation between the Chairperson and the CEO to cement the independence of board members [Sec. 5(b)].

“Part D” and “Part G” specifically pointed out the “relationship with other stakeholders” and “accountability and reporting” on host community and the general public respectively. The code which is clear on this in Sec. 28, tagged “Sustainability Issues” (SEC Code, 2011), states:

Companies should pay adequate attention to the interest of their stakeholders such as its employees, host community, the consumers and the general public. Public companies should demonstrate sensitivity to Nigeria’s social and cultural diversity and should as much as possible promote strategic national interests as well as national ethos and values without compromising global aspirations where applicable. Sec. 28(1).

Moreover, “The Board should report annually the nature and extent of its social, ethical, safety, health and environmental policies and practice .... Sec. 28(3).”

Section 28(3)(d) recommended the following categorization:

1. Adaption, in the company's operations, of options with the most benefit or least damage to the environment, particularly for companies operating in disadvantaged regions or regions with delicate ecology in order to minimize environmental impact of the company's operations: ... Sec. 28(3)(d)...
2. Nature and extent of the company's social investment policy; ... Sec. 28(3)(h).
3. "company's sustainability policies and programs covering issues such as corruption, community service, environmental protection, HIV/AIDs and matters of general corporate social responsibility". Sec. 34(4)(k).

These sections of the code of governance are what strengthens the legality of sustainability reporting in Nigeria.

In this research, BOD was observed from four dimensions which include:

- a. Board independence in terms of nonexecutive to executive membership ratio (Sec. 4.3).
- b. Duality as per the positions held by the Chief Executive Officers in relation to Chairperson [Sec. 5.1(b)].
- c. Environmental experts [Sec. 28.3(d)].
- d. Board size (Sec. 4.2).

## **2.14 Summary of the Chapter**

In brief, the chapter has discussed the fact that sustainability reporting was a little known concept until the emergence of corporate governance. Reporting of sustainability information is about communicating social and environmental effects of organisations economic actions on specific interest groups within society and society in general with the aim of enlightening stakeholders. This provides grounds for litigation. However, sustainability reporting is the lack of qualified personnel and the exorbitant fees charged by professionals. G4 sustainability information disclosure standard is at present the most popular standard and guidelines for disclosing sustainability information. It contains some 149 "aspects" classified into 52



“indicators”. In Nigeria, the oil and gas sector is being compelled to abide by sustainability rules and regulations with the provision of a separate instrument known as EGASPIN to monitor compliance. Other sectors however, are not tightly monitored. This is because the oil and gas industry does not only account for very high sustainability problems, but is also highly socially, economically and politically sensitive.

Empirical studies on sustainability issues have shown mixed discoveries as covered by the works of Aquino (2009), Buniamin (2010), Mbat *et al.* (2013), Rahman *et al.* (2010), etc. While some results showed significant relationships (Acti-Ifurueze *et al.*, 2013), lower levels of disclosure (Carol & Frost, 2006), negative relationship (Chukwubueze & Nnaomah, 2012; Dandago & Arugu, 2014), and positive relationship (Uwuigbe, 2012). Basically, the major determinant factors of sustainability reporting were grouped into corporate characteristics, general contextual factors and internal contextual factors. Consequently, the research was built on the relationship between sustainability reporting and 10 determinant factors classified into four variables of environmental policy administrators, corporate performance, board characteristics and foreign ownership concentration. These determinants are NSE, DPR/NESREA, firm size, financial leverage, market-to-book value ratio, board independence, duality, environmental expert, board size and foreign ownership concentration.

## CHAPTER THREE

### METHODOLOGY

#### 3.1 Introduction

Discussions in this chapter focuses on the research framework and design. The framework spells out the theoretical direction of the research by inculcating the theories that explains the relationship between sustainability reporting and determinant factors into a network of relationships. As one of its objectives, this research examines the relationship of sustainability information disclosure from four perspective: environmental policy administrators, corporate financial performance, board characteristics and foreign ownership concentration. Each of these dimensions was observed under appropriate theories from the underpinning and supporting theories of the research. The research was built on a conceptual framework of institutional theory (underpinning theory) and stakeholder theory, legitimacy theory and capital need theory (supporting theories), developed based on previous literature.

Unlike their counterparts in underdeveloped and developing economies, financial reporting in developed countries has now taken a different dimension by shifting more emphasis to reporting other nonfinancial aspects of companies' operations. It is of great significant that any decision embarked upon by management should not only consider financial matter which affects only shareholders, but must include nonfinancial aspects like environmental and social issues that affects other stakeholders (Ayoola & Olasanmi, 2013). The chapter therefore, explores theories that have been applied by past studies on the four dimensions of this research and states the underpinning theories on which each variable under the determinants was based.

In a similar vein, the chapter also discusses the way the research was conducted which starts by determining and defining the population representing the targeted scope. From the population a sample size was selected using well-defined, standard and universally acceptable criteria. In addition to this, the methods of data collection and analysis were also fully discussed. The most important aspect of this chapter deals with the data screening and cleaning which involves determination and replacement of missing data, removal of outliers, and conducting normality, validity and reliability tests.

### **3.2 Theoretical and Conceptual Framework**

The terms theoretical framework and conceptual framework have often been used interchangeably or jointly. In simple terms, they are diagrammatical demonstration of several constructs organised for research purposes that will enable determination of relationships among variables (Sekaran & Bougie, 2013). More specifically, they are analytical tools that have several variations and contexts. A clear distinction between the two sees theoretical framework as the provision of “a general representation of relationships between things in a given phenomenon”. On the other hand, conceptual framework is the “researcher’s idea on how the research problem will have to be explored” (Regoniel, 2016). In framework building, the aims and objectives of the project under consideration comes first. Framework is the organization of ideas to achieve research project’s objective. This in effect is what links it to the purpose of any research (Shields & Rangarajan, 2013).

The framework of this research was based mainly on the influence of the major sets of determinants (environmental policy administrators, corporate economic performance, board characteristics and corporate foreign ownership concentration) of

sustainability reporting as adapted from Adams and Frost (2006), Adams and McNicholas (2007), Ahmad *et al.* (2003), Enahoro (2009) and Monteiro and Aibar-Guzman (2010). Furthermore, the framework was built to explain these relationships in terms of the underpinning and supporting theories of the research (Figure 3.1).

Earlier stages of sustainability reporting witnessed the lack of legislation or guidelines. The high level of importance attached to it however, encouraged voluntary disclosures especially by larger companies in developed economies. The most difficult task in sustainability accounting research is the choice of the underpinning theories that explains the disclosure, as it is both complex and limited (Haider, 2010). Deegan (2002), Huang, Pepper and Bowrey (2014), Madalina, Nadia and Catalin (2010) and Thompson (2007), all agreed that the frequently used accounting theories for sustainability reporting disclosures over the years are the stakeholder theory, the legitimacy theory and the agency theory. All accounting theories recognized that corporations influence, and are influenced by the society in which they operate (Branco & Rodrigues, 2007). In this literature, the researcher reviews the underpinning and supporting theories of the research which constitutes the institutional theory, the stakeholders' theory, legitimacy theory and capital need theory. Lessons are borrowed from Fernando and Lawrence (2014), that the theories applied in this research have similarities and are interrelated. Therefore, they complement each other and can be integrated and link sustainability disclosure so as to explain the motives of their influence.

### 3.2.1 Institutional Theoretical Framework

Institutional theory according to Bell & Lundblad (2011), addresses organizational policy changes. The theory seeks to evaluate the role of outside organizational pressure on disclosure. Institutions implement policies, which involves legal, economic and social technicalities (Tieleman & Leroy, 2003). That is, the coercive pressure from external influence on organizations emanating from governments, regulatory agencies or bodies and norms of host communities. Bruton, Ahlstrom, & Li, (2010) purported that the institutional theory is about organizations saving their “positions and legitimacy” by abiding by the formal sets of agreements, norms, customs, traditions, etc. that firms and individuals are expected to follow. These rules are derived from well established societal practices that exert conformance pressure (Bruton *et al.*, 2010; Cornelissen, Durand, Fiss, Lammers, & Vaara, 2015). Outside institutions defines what is appropriate in a rationale sense thereby rendering other actions null and void. In another vein, Campbell (2007) argued that the relationship between basic economic conditions and corporate behaviour is mediated by public and private institution regulations, institutionalized norms and conventions. Organizations are shaped by the influence and constraints from the external environment (Scott, 1987) as they expected to operate within a social framework of norms, values and conventions. This puts pressure on them to conform within an organizational field (Fernando & Lawrence, 2014), as under conditions of institutional control, corporations are more likely to act in a socially responsible manner. Socially responsible behaviours are behaviours which provides corporate employees with decent living wage relative to local costs of living as stipulated in Charters of international labour organizations (Campbell, 2007). Furthermore, they are behaviours that should not ruin local environmental norms and

jeopardize host community's health as measured against internationally acceptable standards. Corporate social behaviour should meet the expectations of stakeholders it interacts with (Campbell, 2017). Institutional pressure according to Dacin, Goodstein and Scott (2002) could come from three sources of institutionalized norms or practices which are:

1. Functional pressure – arise from problems in company's operations.
2. Political pressure – comes from underlying power distribution.
3. Social pressure – which stems from the existence of heterogeneous and divergent beliefs and practices.

The fact of the matter is that organizations dance to the tune of external institutional forces more so, when such forces are empowered to regulate organizational activities. Left alone companies that embarked on sustainability disclosure would not disclose all information with regards to sustainability issues. However, monitoring by outside institutions like in the case of Nigeria, environmental supervisory agencies such as NSE, DPR and NESREA can force them to comply with legal requirements. For instance in the Petroleum industry DPR must ensure that petroleum companies comply with EGASPIN and other internationally recognized sustainability disclosure guidelines. In the United States, for instance the Dow Jones Industrial Average Sustainability Index (DJIASI) is known to effectively exercise such pressure (Ballou, Heitger, & Landes, 2006). External pressure may produce real and effective changes in terms of sustainability reporting that could be seen in developmental terms (Brown, de Jong & Levy, 2009).

This research investigates the relationship between environmental policy administrators and sustainability reporting by environmentally sensitive firms in

Nigeria. In that case, three items of environmental policy administrators that include the NSE, DPR and NESREA were represented under this dimension of the framework. Specifically, this research intends to examine their influence on sustainability reporting using the institutional theory to explain and examined this relationship. Works by Bell & Lundblad (2011) and Ienciu (2012) on sustainability reporting have been based on the stakeholder theory while Ballou *et al.* (2006) used the political theory for his work on the same area. Unambiguously, the institutional theory looked at the monitoring role of environmental policy administrators. There is supposed to be a positive and significant relationship between the supervisory role of NSE, DPR, and NESREA and sustainability information disclosure. This is because, the higher the monitoring role of these environmental agencies, the higher the disclosure on sustainability information by environmentally sensitive firms; vice versa. Thus, higher supervision by these institutions forces companies to disclosure more. To the best knowledge of this research, there has hardly been any attempt to scrutinise the institutional theory on sustainability reporting relationships.

Studies have shown that constant pressure to comply with funding agencies in order to provide institutional legitimation is what makes public sector operatives like the Volta River Authority (VRA) embark on sustainability reporting (Rahman, Lawrence & Roper, 2004). With the aim of exploring the importance of institutional impact on sustainability disclosure Mosene, Burritt, and Sanagu (2013); writing on the Spanish wind sector came out with the result that initial pressures for sustainability reporting has now been replaced by imitations by firms of each other. Using content analysis on sustainability reports of 2005-2009, they discovered that institutional pressure leads to minimal, ineffective, and unreliable sustainability disclosure. Also in their work on the determinants of integrated reporting, Dragu and

Tiron-Tudor (2013) used applied research (content analysis and data processing) to show that political, cultural and economic factors dictates the release of integrated reports. The research was longitudinal and was based on the US economy. Moreover, firms in the IT sector have been forced by financial leverage IT-based disclosure systems to help manage environmental compliance and related organizational risks (Nikolaeva, & Bicho, 2011). Hence, it was resolve from the research that competitive media pressure and visibility are important determinants of GRI adoption. Suddaby's (2011), study was a critical view on neo-institutionalism. He was able to put forward four problems that may hinder the achievements of the core assumptions and objectives of institutional theory. They include category, language, work, and aesthetics. In another perspective, works by Alabede (2012) and Uwuigbe (2012) have examined the relationship between tax institutions and sustainability reporting discovering no relationship whatsoever and with hardly any theoretical bases. Thus, studies on the role of outside institutions in influencing sustainability disclosure varies greatly.

The application of the institutional theory in this research therefore, assesses the efficiency and effectiveness of environmental monitoring agencies (NSE, DPR and NESREA) in the supervision of environmentally sensitive firms in Nigeria on sustainability information disclosure. Hence, regulatory pressure from these bodies goes a long way in protecting the environment and cultural values of immediate host communities and society at large. In other words, the more the monitoring and supervision by NSE, DPR and NESREA, the better the disclosure on sustainability information. Thus, institutional theory relates the NSE, DPR or NESREA's to the supervisory role they play in sustainability information disclosure.



### 3.2.2 Stakeholder Theoretical Frameworks

Perhaps the most widely used theory in sustainability reporting, the stakeholder theory has been putting environmentally sensitive industries under pressure to publicly report on social and sustainability issues (Ballou, Heitger, & Landes, 2006; Ienciu, 2012). The theory spins around the notion of whether a business organization's responsibility is primarily to deliver profit to shareholders or extend it to non-shareholders (other stakeholders) as well (Mayer, 2006). It should be noted that stakeholders are all those groups without whose support the operation of the organization will collapse (Branco & Rodrigues, 2007; Eljido-Ten, 2009). Modern stakeholder theory is by economic values and realities (Freeman, Wicks, & Parmar, 2004). The aim is for management to develop relationships which inspires and create communities where all parties to a firm strive to give their best to achieve superior firm performance (Laplume, Sonpar, & Litz, 2008). The theory lays more emphasis on morality and value explication (Philips, Freeman & Wicks, 2003). In effect the theory states: "a company owes a wider duty to all who can affect and/or be affected by its act(s) and/or omission(s) and not just its shareholders" (Sama-Lang & Zesung, 2016; Wu, & Wokutch, 2015). The economic operation of companies does not take place in isolation of the traditional, socio-cultural and political aspects of the community. Companies must therefore, consider the implications of their operations on stakeholders other than shareholders which, are not only sensitive to their plight but could be responsible for igniting communal pressure or clashes against the operations of firms in their communities (Haider, 2010).

In the eyes of Donaldson and Preston, (2006) and Yusoff and Darus (2012), persons participating in the activities of firms do so to gain something. It is therefore advisable that policy formulation takes cognisance of the interest of all stakeholders

because managers who wish to maximize the businesses' potential will consider broader stakeholders' interest (Barde, 2009; Huang, Pepper & Bowrey, 2014). Managers should therefore, not give priority only to maximizing shareholders wealth. Though a primary objective, businesses which tow this line tend to be imprudent and ethically unjustifiable (Mayer, 2006). The stakeholder theory has two models which include the Businesses Planning and Policy Model (BPPM) and the Corporate Social Responsibility Model (CSR) (Elijido-Ten, 2009). The BPPM focusses on the development of strategic policy decisions by stakeholders while the CSR provides for companies to include non-traditional stakeholder (experts) in the formulation of corporate plans. CSR extends to external influences from advisers like environmentalist, regulatory institutions, and environmental experts (Elijido-Ten, 2009). The stakeholder theory can however be criticized for only examining the moral and ethical power and responses of stakeholders. It is therefore static and limited to the moral principles and virtues dependency of organizations.

### **3.2.3 Legitimacy Theoretical Frameworks**

One of the most popular social and sustainability accounting theories, the legality and legitimacy of corporate activities is given priority by this theory (Deegan, 2002; Lindblom, 1994; Parker, 2005). Under this theory, matches are made between sustainability disclosure and social pressure from litigation (Huang, Pepper & Bowrey, 2014). Any mismatch can be viewed as a "legitimacy gap: with sustainability performance being used to gain, repair, maintain or reduce this gap" (Deegan, 2007) in what is called "legitimacy tactics". According to Bhattacharyya (2016), legitimacy focusses on the consistency between organizational and societal value systems. It embodied the idea that organizations actions are desirable, proper or

appropriate within societal norms, values, behaviour and practices. Bhattacharyya (2016) further pointed out that legitimacy could be pragmatic, cognitive or moral. Moreover, legitimacy could be seen as goodwill that assist members to tolerate outputs whose outcomes may be damaging to their interests (Gibson, Caldeira, & Spence, 2005). This in essence forces companies to abide by all legal means guiding their operations. Respecting and abiding by all rules and regulations gives greater legitimacy to organizations and are likely to generate acquaintances (Gibson *et al.*, 2005). Therefore, the more legitimate a company behaves, the more they are accepted by the community.

Thus through the legitimacy theory one can examine the relationship between legitimacy gap and legitimacy tactics on disclosure. The legitimacy theory became significantly advanced after the introduction of the TBL reporting or what Geol (2010), referred to as the three Ps (profit, people and planet). It is closely related to stakeholder theory in the sense that it encourages accountability and seeks to avoid litigation (Bhattacharyya, 2014; Yusoff & Darus, 2012). Bell and Lundblad (2011), posit that this theory exists when an organization's goal and values overlap with and are shaped by society. This is because under this theory, companies disclose sustainability information because they want to portray beautiful images as good citizens (Branco & Rodrigues, 2007). Corporate bodies always try to clear misunderstanding about their activities as it affects sustainability issues, through legitimacy (Huang, Pepper & Bowrey, 2014).

It is obvious that with legislation, guidelines, and standards now in place on sustainability disclosure, companies comply to avoid litigation. Some disclosures are however, deceptive as companies disclose on unnecessary issues or items. For instance instead of a company to provide employment for a fishing community whose

livelihood has been polluted, the company would instead build schools and roads. These are the types of disclosures embarked upon in the Niger Delta (Alabi & Ntukekpo, 2012). Some information disclosed tends to focus on good news designed to redirect attention from major events (Bell & Lundblad, 2011). Llena, Moneva and Hernandez (2007) also suggested that to remain legitimate, business organizations should conform with or attempt to change communal values, perceptions and expectations by disclosing in the environmental report things that will divert attention from negative activities of the firm. It has also been argued by some scholars that the legitimacy theory is preferable to the stakeholder theory because companies with higher environmental impact (environmentally sensitive companies) and publicity tend to disclose more than companies which seek to satisfy stakeholders (Llena *et al.*, 2007). The theory however does not explain when changes will occur or how organization will respond to changes.

Patten (2002) used legitimacy theory to determine the legal influence of financial performance on information disclosure as it relates to environmental matters. The majority of studies however, were based on the stakeholder theory (Acti-Ifurueze, 2013; Akbas, 2014; Chukwubueze & Nnaomah, 2012; Dandago & Arugu, 2014; Rajab, 2009), which has been applied in different areas of study like risk management, environmental cost and corporate performance to test whether a business organization's primary responsibility is to deliver profit to shareholders. Elements like board independence, duality, environmental experts and board size could all be related to sustainability reporting through stakeholders and legitimacy theories. It is expected that the more non-executive members there are in the board, the higher the protection given to minority shareholders and stakeholders with no direct interest in the business. Moreover, a bigger board size is a sign that wider

interest other than shareholders it being represented (SEC Code, 2011). Similarly, CEO's duality and the presence of environmental experts in a company's BOD are legal requirements which must be fulfilled and complied with (SEC Code, 2011).

### **3.2.4 Capital Need Theoretical Framework**

The neoclassical model of capital led by Samuelson/Solow/Swan, shows that the return on capital is determined by the diminishing marginal productivity of capital which is represented by the aggregate production function (Cohen & Harcourt, 2003). The higher the production of capital the higher the return on it (interest). In other words, the demand for capital is to maximize the net worth of the business. Investors are ready to pay more for the use of capital if it adds to the value (net worth) of the business (Jorgenson, 1963). Therefore, disclosures of sustainability information has the advantage of adding to the value of business. Thus, the disclosure of economic, environmental and social information about a business brings out probable risks of a business. Ultimately, this could serve as a decision-making bases for investing in a business. The more the disclosure of sustainability information, the more capital the business attracts.

Competition between firms in the capital market to attract more investments is intensive especially from foreign investors. According to Barde (2009), capital need theory entails the disclosure of more information in annual reports by firms to induce and attract investors. By embarking on sustainability disclosure, a company not only widened the scope of information disclosure; but also helps in its future economic prospects. This economic prospect is sometimes estimated by firms' ability to make voluntary disclosure on environmental and social issues. Strictly speaking, capital

need theory is a reflection of company's need to compete with each other to raise capital in the capital market through the issuing of shares (Shehata, 2014). The firm's future economic prospects are assessed through voluntary disclosure and it serves as the basis for reduction in a firm's cost of capital. This makes it a key motive for disclosure (Rajab, 2009). Better disclosure leads to efficient allocation of capital in the capital market assisting in accurate pricing which, helps in attracting new investors thus enabling healthy liquidity (Shehata, 2014). The result is to encourage firms to accept a lower rate of return thereby enabling the firm to have a lower cost of capital and reduce external borrowing, which is costly. Overall, increased transparency brought about by disclosure builds confidence in shareholders thereby reducing uncertainty.

In measuring the significance of the relationship between company characteristics and sustainability disclosure, the capital need theory is one of the justifiable theories to be applied (Al-Htaybat, 2014). This is so because it could be used to explain different points of financial or other disclosures. Perhaps of more priority is the observation by Al-Htaybat (2014) and Rajab (2009), that the theory provides answers to variations in disclosure among companies. This may include the objective to raise capital as cheaply as possible and the ability to distinguish one organization from another.

Most of the relationships that this research examines are based on the need to attract more investors to a company. Foreign ownership concentration could be identified as a major determinant of sustainability reporting especially as it affects foreign investment (Volconici, 2014). Foreign firms operating in developing economies are in most cases subsidiaries of home companies which tends to export home accounting practices to their branches. Muhibudeen and Haladu (2014)

observed that with majority of economies accepting the IFRS, accountability is becoming universal with different economies (subsidiaries) preparing similar annual reports (holding companies). One of the objective of this research is to examine the impact of corporate foreign ownership concentration in terms of foreign and local ownerships, on sustainability reporting. Basing the foreign ownership concentration on the capital need theory, this research measures the assertion that a positive and significant relationship exists between foreign ownership concentration and sustainability information disclosure. In the same way, Al-Htaybat (2014) observed that the capital need theory justifies measuring the significance of the relationship between board characteristics and sustainability information disclosure. In this case, it is expected that where foreign companies dominate, disclosure on environmental and social issues are expected to be high, thus attracting more foreign investment. The aim of most business organizations is to increase their asset base by attracting external finance either through debt or through equity financing (Shehata, 2014). The capital need theory helps firms in achieving this at a very low cost.

The relationship between cost of capital and sustainability disclosure is thought to be negative. Hence higher information disclosure leads to lower cost of capital. Nevertheless, a positive association could exist between disclosure and capital need of a business (equity or debt).

To conclude the theoretical and conceptual framework it can be said that the capital need theory affects financial leverage, market-to-book value ratio, environmental experts and foreign ownership concentration. Higher sustainability disclosure by companies attracts more investors thus, increasing the equity base of a firm. On the other hand, lower disclosure on sustainability issues will scare investors away (Shehata, 2014; Rajab, 2009). The same goes for foreign investors who placed

more emphasis on “green” as oppose to “fossil” investments (Volconici, 2014). The more investors are attracted to a business, the higher the market-to-book value ratio of the firm. It could therefore, be seen that there is a direct link between market-to-book value ratio and sustainability reporting.





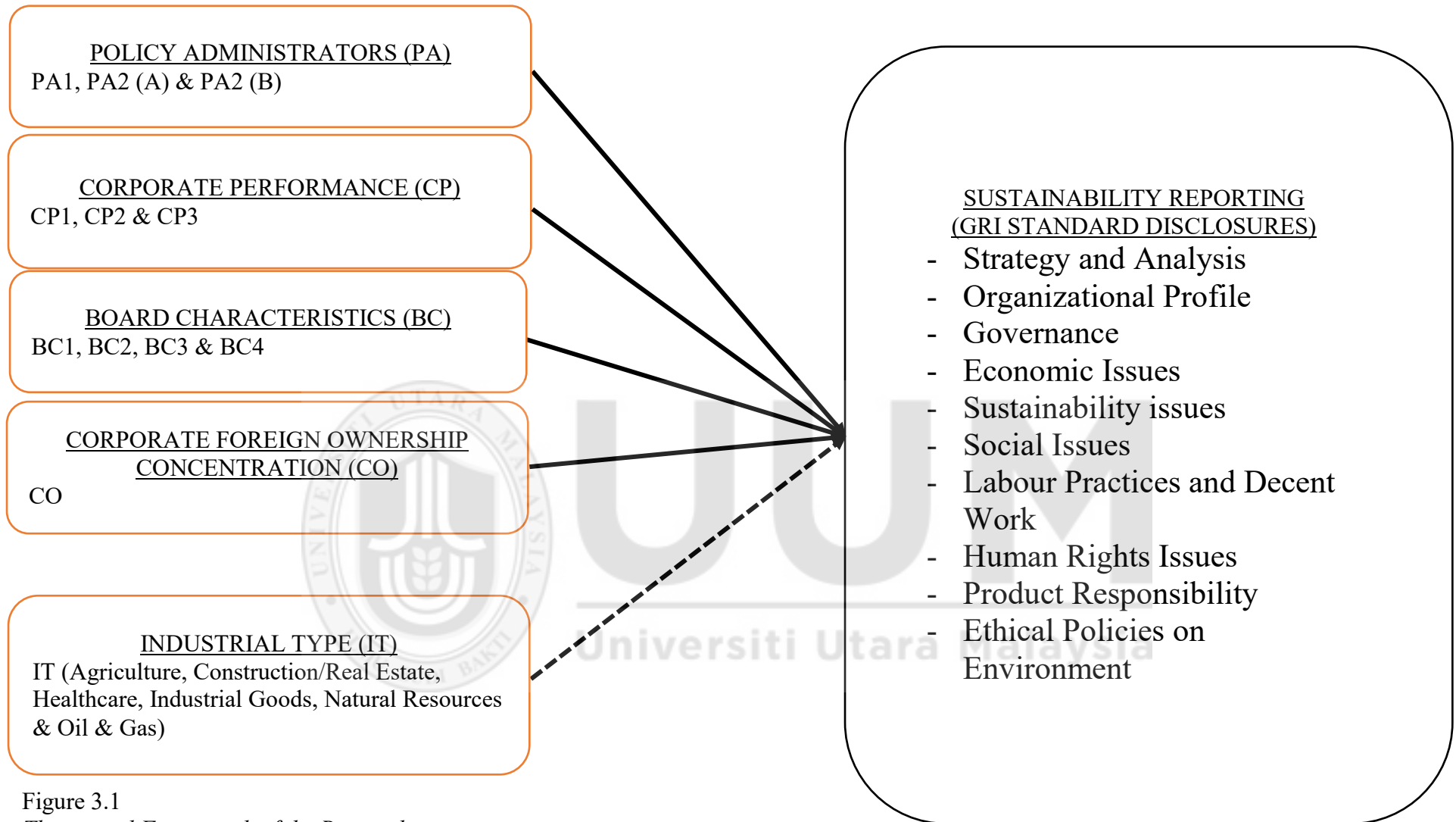


Figure 3.1  
*Theoretical Framework of the Research*

The presence of environmental experts in the board puts more pressure on management to embark on sustainability reporting. Lack of environmental experts could retard disclosure on sustainability issues. This is because the presence of experts on environmental matters in the board may provide management with appropriate advice that could encourage it to make disclosures on sustainability issues. Not making disclosure on sustainability issues may distract investors like the Rockefeller foundation (Volconici, 2014) and Bill Gate, who placed emphasis on “non-fossil” or green investments. This could affect the capital base of a business organization negatively.

The stakeholder theory and legitimacy theory relates firm size, board independence, duality and board size to sustainability reporting in the framework of this research. Larger firms have bigger reputation and image to protect they are therefore, forced to embark on sustainability information disclosure (Ballou *et al.*, 2006; Ienciu, 2012). In contrast, smaller firms are less sensitive to public scrutiny and hence, they can pass undetected. As a result, bigger firms have a lot at stake as the societal interest forces them to disclose more. Thus, the stakeholder theory is a strong basis on which to build a framework that forces bigger companies to disclose more of sustainability information (Branco & Rodrigues, 2007; Elijido-Ten, 2009). The same could be said for board independence. The more nonexecutive and independent members there are in a board, the higher the disclosure on sustainability issues. A board dominated by shareholders puts profit motives above environmental and social issues. The stakeholder theory therefore, affects board independence in terms of overall stakeholders to a business organization.

In a nutshell, this research examines four independent variables with a total of ten dimensions. While the dimensions under environmental policy administrators

were assessed based on the institutional theory, dimensions of corporate performance, board characteristics and corporate foreign ownership concentration; were evaluated with the stakeholder, legitimacy and capital need theories. Finally, the application of control variable was used to classify the firms in this research into six industrial sectors. It was also shown that works by Alabi (2012), Asaolu *et al.* (2011), Smith *et al.* (2007) and Sulaiman *et al.* (2012) were all based on the stakeholder theory. The same could be said about Adams (2004) examination of sustainability reporting performance portrayal gap. However, works of Eng and Mak (2003), Cheng *et al.* (2000) and Barako *et al.* (2006) were all built on the other theories. In this regard, all of the theories of this research (institutional theory, stakeholder theory, legitimacy theory and capital need theory); were applied on the ten (10) dimensions of the four independent variables. The table below (Table 3.1) summarizes relevant independent variables and theories.

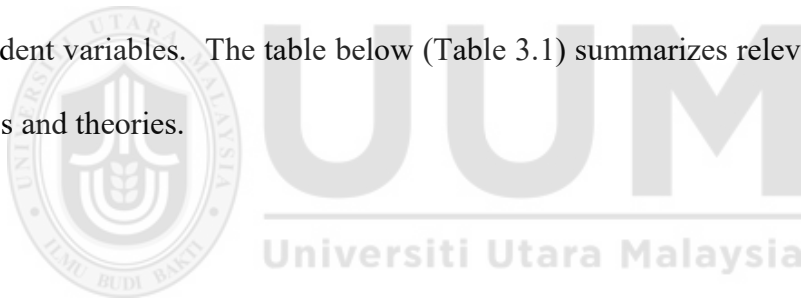


Table 3.1

*Relevant Independent Variables and Theories of the Research Framework*

<b>Variables</b>	<b>Determinants</b>	<b>Underpinning Theories</b>	<b>Source</b>
NSE	<b>Environmental Policy Administrators</b>	Institutional theory and Capital Need theory	Bruton <i>et al.</i> (2010), Campbell (2007), Cohen & Harcourt (2003), Cornelissen <i>et al.</i> (2015), Fernando & Lawrence (2014), Jorgenson (1963), Scott (1987).
DPR		Institutional theory and Stakeholder theory	Lawrence (2014), Jorgenson (1963), Scott (1987).
NESREA		Institutional theory Capital Need theory	
Firm Size	<b>Corporate Performance</b>	Capital Need theory and Stakeholder theory	Cohen & Harcourt (2003), Fernando & Lawrence (2014), Freeman <i>et al.</i> (2004), Jorgenson (1963), Laplume <i>et al.</i> (2008), Philips <i>et al.</i> (2003), Wu & Wokutch (2015).
Financial-Leverage		Capital Need theory	Jorgenson (1963), Laplume <i>et al.</i> (2008), Philips <i>et al.</i> (2003), Wu & Wokutch (2015).
Market-to-Book value		Capital need theory	
Board Independence	<b>Board Characteristics</b>	Legitimacy and Stakeholder theory	Cohen & Harcourt (2003), Fernando & Lawrence (2014), Freeman <i>et al.</i> (2004), Gibson <i>et al.</i> (2005), Jorgenson (1963), Laplume <i>et al.</i> (2008), Philips <i>et al.</i> (2003), Wu & Wokutch (2015).
Duality		Legitimacy theory	
Environmental Experts		Legitimacy and Capital Need theory	
Board Size		Legitimacy and Stakeholder theory	
Foreign ownership concentration	<b>Foreign Ownership Concentration</b>	Capital Need theory	Cohen & Harcourt (2003), Fernando & Lawrence (2014), Freeman <i>et al.</i> (2004).

### 3.3 Hypotheses Development

To assess the nature and trend of sustainability reporting and evaluate the relationship between sustainability disclosure and its determinants (environmental policy administrators, corporate performance, Board characteristics and corporate foreign ownership concentration) based on the institutional theory, stakeholder theory, legitimacy theory and capital need theory; proper assertions should be formulated. In this section, a number of hypotheses linked to the objectives of this research were formulated with each one based on at least one of the theories discussed earlier in this chapter.

### 3.3.1 Environmental Policy Administrators

Of major priority in this section is to determine the means of evaluating the performance of Nigeria's major environmental policy administrators (NSE, DPR and NESREA), since to the best of the researcher's knowledge there are hardly any empirical study available on this concept. A policy as seen by Tieleman and Leroy (2003) is a process that resulted from other processes which, involve the participation of several actors and govern by legal, economic, and social principles and technicality. Policy evaluation is about the scientific analysis of a "specific policy (or sub-field of that policy), which is evaluated on the basis of criteria, and which serves as input for the formulation of sanctions" (Tieleman & Leroy, 2003). There are many ways by which policy could be evaluated which ranges from scientific, legal, administrative, economic, ecological, to philosophical. The ecological method, which best serves the interest of this research work, evaluates policy through "Environmental Effect Reporting" (EER) by document analysis (Tieleman & Leroy, 2003). In other words, by evaluating the environmental impacts of companies' operations on host communities' physical and social environment; ecological policy evaluation has taken place. Cavanagh, Hahn, and Stavins (2001) mentioned that economic criteria like cost-benefit analysis are necessary for policy assessment. They however, argued that this method is controversial and instead settled for "cost effectiveness" which proved to be more acceptable. Generally, institutional monitoring and evaluation are important tools for development (Salewicz, 1997). Proper monitoring and evaluation stimulates review and improvement of firms operational performance (Salewicz, 1997). The belief of Monteiro and Aibar-Guzman (2010) is that firms listed in the stock exchange disclose more on sustainability information than those not listed. This is best demonstrated in countries

like the United States, where it is mandatory for firms listed on the NASDAQ or the New York Stock Exchange to meet the minimum disclosure requirements (Adams, 2004).

Studies which tries to relate the role of external organizations/institutions in influencing sustainability reporting are very limited and have come out with different results. Most of these studies have been based on the stakeholder theory (Bell & Lundblad, 2011; Ienciu, 2012; Monteiro & Aibar-Guzman, 2010). Ienciu (2012) and Monteiro and Aibar-Guzman (2010) who used content analysis to evaluate their information; discovered a weak relationship. On the other hand, the work of Ballou *et al.* (2006), showed no relationship whatsoever though it was linked to the institutional theory. Now that the NSE is an active monitor of sustainability reporting, there is greater demand for its role as an external institution to listed firms in the NSE. Going by the belief of Cornelissen *et al.* (2015) that firms listed in the stock exchange disclose more than firms that are not listed, this research therefore conceive that:

H<sub>a1</sub> there is a positive relationship between the monitoring role of the NSE and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

Being the most important agencies in charge of sustainability issues DPR and NESREA are expected to have significant influence on sustainability disclosure. It should be noted that the DPR and NESREA have their individual environmental guidelines on sustainability issues in Nigeria. These guidelines are more of regulatory than disclosure standards. In examining the relationship between tax authorities and sustainability disclosure Alabede (2012) found no relationship whatsoever between the two. On the contrary, other studies hardly gives theoretical bases of embarking on sustainability reporting as it affects external influence from institutions (Alabede, 2012; Bell *et al.*, 2011; Monteiro & Aibar-Guzman, 2012; Uwuigbe, 2012). This

research therefore, proposes for the assertion that (Bruton *et al.*, 2010; Campbell, 2007):

H<sub>a2</sub> there is a positive relationship between the monitoring role of DPR/NESREA and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

### **3.3.2 Corporate Performance (Financial/Economic)**

#### **3.3.2.1 Firm Size and Sustainability Disclosure**

This variable distinguishes between large and small firms based on their asset base. Managers of bigger companies may tend to disclose more on environmental matters in order to reduce their political costs. Despite the fact that different results have been recorded in this area by examining the relationship between firm size and sustainability reporting, studies have also been based on different theories. The stakeholder theory is very popular with this variable and showed mostly positive relationship (Acti-Ifurueze, 2013; Akbas, 2014; Chukwubueze, 2012; Dandago & Arugu, 2014; Delmas & Blass, 2010). Patten (2002) discovered that the firm's size although significant might not be critical in influencing corporate sustainability reporting. Patten (2002) however, who found an inverse and significant relationship based his study on the legitimacy theory.

Haddock-Fraser and Fraser (2008), Ismail and Ibrahim (2009) and Stanny and Ely (2008) discovered from their research that there exists a positive relationship between firms' size and sustainability information disclosure. Direct relationship has also been discovered to be a result in studies based on these relationships (Andrikopoulos & Kriklani, 2013; Cormier and Morgan 1999; Fryxell, 2004; Frith, 1979; Monteiro & Aibar-Guzman, 2010; Udayasankar, 2008; Wong & Fryxell, 2004; Trotman & Brandley, 1981).

From host communities to environmental cost, firm size has been studied. The political economy theory which takes cognisance of both the legitimacy and stakeholder theories serves this variable best. For this reason, this research formulates this hypothesis on firm's size (Freeman *et al.*, 2004; Fernando & Lawrence, 2014):

H<sub>a3</sub> there is a positive relationship between firm size and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

### 3.3.2.2 Financial Leverage and Sustainability Disclosure

Financial leverage is an important aspect of a firm's capital structure. According to Lebrun (2016), firms that successfully uses leverage proves by their success that they can handle risks connected with financial responsibility. This is an advantage to firms that needs additional financing for expansion purposes because it gives them access to loans at interest rates that are more attractive. Replicating individuals in this context companies that have good finances but little credit past, occasionally have problem convincing lenders that they are deserving of a good rate (Lebrun, 2016). In addition, financial leverage allows companies to maximize their profits compared to when the business depends wholly on equity shares. Therefore, it is necessary for a company to be able to efficiently manage leverage by constantly honouring debt repayment. This effort increases the chances of easy access to loans at lower costs. For this reason, management may voluntarily disclose debt-financing information in financial reports for the purpose of effective monitoring (Ahmad *et al.*, 2003).

Empirical evidences on the relationship between financial leverage and sustainability reporting has been contradictory with no consensus (Ahmad *at al.*, 2003; Akbas, 2014). A look at the relationship between financial leverage and sustainability reporting by Aboody *et al.* (2004), showed a positive relationship. This



positive relationship is an indication that higher leverage leads to higher disclosure of sustainability information. Thus, a positive relationship could encourage creditors as well as investors to put their investment in the business thereby strongly supporting the capital need theory. Conversely, the research of Cormier and Morgan (1999) and Uwuigbe (2012) found a negative relationship between financial leverage and sustainability disclosure. In another study, the relationship between financial leverage and sustainability reporting is insignificant as seen from the result of the work of Smith *et al.*, (2007). Most of the studies build their framework for this variable on the capital need theory (Cohen & Harcourt, 2003; Jorgenson, 1963). The hypothesis therefore, tests the relationship between financial leverage and sustainability disclosure.

H<sub>a4</sub> there is a positive relationship between financial leverage and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

### **3.3.2.3 Market-to-Book Value Ratio and Sustainability Disclosure**

The market-to-book value ratio measures the market value of a firm in relation to its accounting value (Peavler, 2016). Also known as price-to-book ratio, it can be used to make comparison between different companies in the same industry or sector (Zacks, 2016). Notwithstanding, the market value of a company has been computed through different tools of measurement. In one of the studies that uses owners' equity to measure market value of a firm Cortez (2011), discovered that the book value of a firm and owners' equity significantly and positively influence sustainability disclosure on annual accounts of firms. In their study Brammer and Pavelin (2006) and Moneva and Llana (2000) discovered that a relationship exists between sustainability reporting and market valuation. The relationship between sustainability reporting and market-to-book value according to Connelly and Limpaphayom, (2004)

is non-linear. That is to say, the rate of change between the two variables is not equally proportionate. From another perspective, Hassel *et al.* (2005) explained that the market value could be a measure of the future present value of returns on equity. They further argued that disclosure of market value have the effect of reducing firm's uncertainty on the part of the investor and simultaneously reducing cost of capital; thus increasing a firm's market value. On the other hand, Rajab (2009) whose study was based on the stakeholder theory applied risk to measure market value. Hence, the outcome of his investigation found an inverse relationship between risks and sustainability reporting. To know whether any positive and significant relationship exists this research tests for the following hypothesis (Cohen & Harcourt, 2003; Fernando & Lawrence, 2014, Jorgenson, 1963).

H<sub>a5</sub> there is a positive relationship between market-to-book value ratio and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

### **3.3.3 Board Characteristics**

#### **3.3.3.1 Board Independence and Sustainability Disclosure**

According to PwC (2016), the importance of Board independence could be seen from its impact proxy voting decisions. Independent members of the board of directors who do not aligned themselves with shareholders could encourage firms to disclose more on sustainability information (Chen & Jaggi, 2000; Eng & Mak, 2003; Ho & Wong, 2001). Therefore, the larger the number of independent members in a company's board of directors, the higher the disclosure on sustainability issues is expected. Empirical results of the relationship between Board independence and sustainability reporting have shown that positive relationship as well as inverse relationship has been discovered by past researches (Chen & Jaggi, 2000; Donnelly & Mulcahy, 2008; Eng & Mak, 2003; Smith *et al.*, 2007). A breakdown of studies by

Barako *et al.*, (2006), Eng and Mak (2003), Gul, and Leung (2002) discovered a significant but inverse relationship between sustainability disclosure and board independence. Another study that looked at the influence of board structure on firm's performance came out with a positive impact result, indicating that board independence directly affects corporate economic performance (De Jorge & Laborda, 2011; Fauzi & Locke, 2012; Lappalainen & Nishanen, 2009; Maquieira, Espinosa & Vieito, 2012; Pindado & De La Torre, 2011). However, Donnelly and Mulcahy (2008) came out with a positive relationship between board independence and the level of reporting. Similarly, the work of Chen and Jaggi (2000) showed that corporate board independence is positively associated with the comprehensiveness of financial disclosures. This research however, tests through the stakeholder and legitimacy theories for the assertion that (Fernando & Lawrence, 2014; Freeman *et al.*, 2004; Gibson *et al.*, 2005; Philips *et al.*, 2003):

H<sub>a6</sub> there is a positive relationship between board independence and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

### 3.3.3.2 Duality and Sustainability Disclosure

CEO's duality eradicates any conflict of interest between the Chairman and CEO (Sikes, 2013). Apart from being charged directly with overseeing the company's affairs and its management, a firm's board of directors is also responsible for hiring and firing CEOs. Therefore, installing the same person in these two positions could indicate conflict of interests. Moreover, the position of CEO is also significant as non-shareholder directors acts as neutralizers in the event of conflicts between management and shareholders; thereby providing checks and balances on examining the association between board monitoring and voluntary disclosure (Chen & Jaggi, 2000; Cheng & Courtenay, 2006; Fama & Jensen, 1983; Haniffa & Cooke,

2002). It has also been shown that for positive share value, tender offer bids, and management buyout announcements, CEO's who are not shareholders have played important roles (Cotter, Shivdasani & Zenner, 1997). These vital roles played by non-shareholder directors have greatly aided in voluntary disclosure of sustainability information.

Of the empirical works that have been carried out on duality and sustainability disclosure relationship, the work of Uwuigbe *et al.*, (2014) and Vakilifard *et al.*, (2014) found a direct relationship between duality and financial leverage. Alternatively, in other studies it has been found that CEO's dual position has an inverse relationship with disclosure (Brickley, Coles & Terry, 1994; Cormier *et al.*, 2004; Cotter, Shivdasani & Zenner, 1997; Lee, Rosenstein, Rangan & Davidson, 1992, Barako *et al.*, 2006<sup>b</sup>). In Nigeria, corporate governance requires the role of CEO to be separated from Chairperson of the company (SEC Code, 2011). This is a legal requirement which this research evaluates using the legitimacy theory. The research therefore, tests for the assertion below (Fernando & Lawrence, 2014; Gibson *et al.*, 2005).

H<sub>a7</sub> there is a positive relationship between the single role of CEOs and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

### 3.3.3.3 Environmental Experts and Sustainability Disclosure

An expert is an individual with special skill or knowledge in his/her area or areas of specialization (\_\_\_\_, 2016). Experts are mostly indicated by their professional qualifications or affiliations. What is more, they need to be sufficiently skilled or knowledgeable preferably more from practical experience than purely theoretical. This makes them indispensable in highly technical areas where the

nonprofessional is deficient in terms of knowledge, meaning and implications of the problem(s) involved (\_\_\_, 2016). Environmental experts are a very necessary composition of a company's board because they not only assists in the trier of facts, but also expected to produced opinions based on reliable data and theories in the field of environmental matters (CAPPETTA, 2014).

The emergence of sustainability management accounting (SMA) is concurrent with the need of companies to satisfy stakeholders' with environmental related information (Burritt *et al.*, 2002). This will help make up for the absence of sustainability issues in conventional accounting. As rightly pointed out by Li (2004), conventional accounting lacks proper measurement of sustainability information which in most cases leads to non-disclosure of information related to it. Hence, the incorporation of environmental experts into a company's management team to help in effective environmental management.

Sulaiman *et al.* (2012) is one of the very few studies that have considered environmental experts relationship. In their assessment of SMA and sustainability reporting relationship based on the stakeholder theory, they discovered a direct and significant relationship between the two. In a similar study on corporate sustainability reporting Ballou *et al.* (2006), showed a positive result. Given the emphasis on sustainability issues in modern investment initiatives, this research seeks to base this variable on both the stakeholder theory and the capital need theory. The underlying assumption is that the more effective and efficient a company's environmental expert is, the better and higher the disclosure on environmental matters (Freeman *et al.*, 2004; Laplume *et al.*, 2008; Sulaiman *et al.*, 2012). Hence, the research attempts to prove the supposition that:

H<sub>a8</sub> there is a positive relationship between environmental experts and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

#### **3.3.3.4 Board Size and Sustainability Disclosure**

The significance of board size was perhaps best illustrated by Cheng, Evans III and Nagarajan (2008), from two perspectives. In the first place, a smaller board size find it easier to arrange meetings, reach consensus and reacts swiftly to issues due to cheaper communication and coordination costs. Secondly, smaller boards restricts members from critically discussing the policies of top managers. Besides, the capability and enticements of the board to control management decreases as board size decreases. Cheng and Courtenay (2006) recounted that too large a board with diverse opinion may encourage non-cohesiveness thus diminishing its monitoring capability. They further asserted that there is yet a theory to back up the relationship between voluntary disclosure and board size, thus making it a major empirical issue.

Studies on this variable have yielded mixed results. Alabi (2012) used stakeholder theory and discovered direct relationship with sustainability reporting. Similarly, Cheng *et al.* (2008) also came out with a significant association between smaller boards and better firm performance. The aforementioned is an indication that the smaller the number of members in the board, the lesser the disclosure of sustainability information. These findings contrasts the result of Chang and Courtenay (2006) who found that no significant relationship exists between board size and sustainability reporting. From the above discussions it could be asserted that the more members there are in the board, the more will sustainability information disclosure be made, vice-versa. This research therefore, investigates this relationship based on the capital need theory and articulates the following hypothesis (Cohen & Harcourt, 2003; Fernando & Lawrence, 2014):

H<sub>a9</sub> there is a positive relationship between board size and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

### **3.3.4 Foreign Corporate Ownership Concentration and Sustainability Disclosure**

Corporate foreign ownership concentration have enjoyed publicity in many areas including sustainability reporting. The concentration of ownership interest in a company is very significant as could be seen from Altunbaş, Kara, and van Rixtel (2007), who talked about the “incentive” and “alignment” effects. According to their investigation, the “incentive” effect is a situation whereby shareholders have shareholdings large enough to enable them exercise control or monitor the performance of a company. Similar attention is also drawn to the “alignment” effect which improves the alignment of interests towards large interest holders as opposed to minority owners.

Studies on foreign ownership concentration are largely based on stakeholder theory with mixed results from findings (Al-Farooque, 2010; Alves, 2010; Andrikopoulos & Kriklani, 2013; El-Gazzar, Fornaro, & Jacob, 2006; Fauzi & Locke, 2012; Lappalainen & Nishanen, 2009; Mangena, Tauringana & Chamisa, 2012; Rashid & Lodh, 2008; Shehata, 2014). The discoveries ranges from positive and inverse relationship (Al-Farooque, 2010; Alves, 2010), to no relationship whatsoever (Rashid & Lodh, 2008; Shehata, 2014).

The result of the research of Andrikopoulos and Kriklani (2013) and El-Gazzar, Fornaro and Jacob (2006), showed a significant relationship between foreign ownership concentration and sustainability disclosure. Conversely, Shabbier, Tahir, and Aziz (2013) discovered an inverse relationship between dividend payment and

foreign ownership concentration. However, consensus arrived at by one study suggest no support for reducing Top1 shareholder ownership and an inverse relationship between earnings management and Top1 foreign ownership concentration with high cost on debt (Al-Farooque, 2010; Alves, 2012). In a similar vein, Delgado-Gacia *et al.*, (2010) discovered that concentrated power in the hands of large shareholders is good for corporate reputation but when such powers are concentrated in hands of transnational corporations (TNC); much concern would be directed towards growth than profitability (David, O'Brien, Yoshikawa & Delios, 2010). Compatible with this view is that of Gary *et al.*, (1996) and Freeman and Jaggi (2005) who argued that a firm's sustainability disclosure is influenced by the behaviour of its subsidiaries in relation to the sustainability information disclosed. In general, firms from developed and advanced economies disclose more on sustainability issues than firms in less developed economies (Monteiro & Aibar-Guzman, 2010). This research however, tests the association between foreign ownership concentration and sustainability reporting by using the capital need theory (Cohen & Harcourt, 2003; Fernando & Lawrence, 2014; Jorgenson, 1963). The hypothesis below was formulated.

H<sub>a10</sub> there is a positive relationship between corporate foreign ownership concentration and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

### **3.4 Research Design**

A research design is a blue print that ricochets the nature of the research and serves as a springboard for accomplishing the research objective. It is a master plan outlining the method and procedures for collecting and analysing the required data and setting some preliminary group of questions to be answered by some set of



conclusions (Babbie, 2004). The quantitative methods adopted for this work is considered most appropriate compared to qualitative technique given the problem statement, the objectives, the questions and the hypothesis formulated as demonstrated by previous studies (Uwuigbe, 2012; Yusoff, 2013).

Quantitative research is one that involves an inquiry into social problems based on particular theories, comprise of variables, expressed in figures and analysed through statistical tools of analysis, so as to prove the correctness or otherwise of the theories (Creswell, 1998). Researches of this nature are heavily guided by secondary data. These include published annual financial reports, stand-alone social/sustainability/environmental reports, and financial information published on the website. Of much significance for this research were financial statements of agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil & gas companies; all of which in environmentally sensitive sectors of the Nigerian economy. The targeted population covered was all companies in the above named sectors quoted in the NSE and all oil and gas companies operating in Nigeria that published their financial reports on the website. Well-documented literatures on the subject matter, opinions expressed on the areas of research that has been covered and the results of findings thereof; have been reviewed thoroughly in earlier chapters.

Content analysis, descriptive analysis, OLS regression of panel data is employed in analysing the data of the 67 environmentally sensitive firms from their operations for a 6-year period. Materials from company's annual reports were sourced from the NSE, Corporate Affairs Commission (CAC), direct requests from companies, company's website, and Manufacturers Association of Nigeria (MAN). Secondary instruments in the form of structured questionnaire administered to environmental monitoring and supervisory bodies were also utilized. The

questionnaire adapted from Ayoola and Olasanmi (2013) and Enahoro (2009) were structured into showing sustainability disclosure compliance by firms in environmentally sensitive sectors.

The methods used are complementary and enables fuller evaluation of the true state of sustainability information disclosure compliance (Enahoro, 2009). A fitting sample size was selected based on standard selection methods. Data collected were then analysed using descriptive statistics with analytical tools like SPSS22, StataSE13 and Excel 2013 to determine the nature of disclosure and relationship between the variables and those between the dependent variable (sustainability reporting) and the independent variables of environmental policy administrators, corporate economic performance, board characteristics, and foreign ownership concentration. The findings thereof were used as the bases for recommendations.

### **3.5 Scope and Population of the research**

The environmentally sensitive sector as listed on the Nigerian stock exchange include the agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil & gas sectors. These sectors are regarded as the most environmentally sensitive especially the oil & gas and manufacturing sectors in Nigeria because they generally influence adversely more on the environment through effluents and emissions from their economic operations (Enahoro, 2009; Owolabi, 2007).

The population of this research include all environmentally sensitive companies registered by CAC. However, only registered firms which are listed on the NSE and some oil and gas companies that published their accounts on the website and

at the same time operating in the country were considered for this research due to the data availability.

Table 3.2  
*Environmentally Sensitive Industries operating in Nigeria (2009-2014)*

<b>Sector</b>	<b>Industries</b>	<b>No. of Companies</b>
<b>AGRICULTURE</b>	Crop Production	3
	Fishing/Hunting/Trapping	1
	Livestock/Animal Specialties	1
	<b>Sub-Total</b>	<b>5</b>
<b>CONSTRUCTION/ REAL ESTATE</b>	Building Construction	2
	Building Structure/Completion/Others	2
	Non-Building/Heavy Construction	2
	Real Estate Development	2
	Real Investment Trust	2
	<b>Sub-Total</b>	<b>10</b>
<b>HEALTHCARE</b>	Healthcare Providers	2
	Medical Supplies	1
	Pharmaceuticals	7
	<b>Sub-Total</b>	<b>10</b>
<b>INDUSTRIAL GOODS</b>	Building Materials	13
	Electronic & Electrical Products	3
	Packaging/Containers	9
	Tool and Machinery	3
	<b>Sub-Total</b>	<b>28</b>
<b>NATURAL RESOURCES</b>	Chemicals	1
	Metals	2
	Non-Metallic Mineral Mining	1
	Paper/Forest Products	2
<b>Sub-Total</b>	<b>6</b>	
<b>OIL &amp; GAS</b>	Energy Equipment & Services	1
	Integrated Oil & Gas Services	1
	Petroleum & Petroleum Products Distributors	20
<b>Sub-Total</b>	<b>22</b>	
<b>Grand Total</b>		<b>81</b>

Source: NSE FactBook 2011/2012 & 2012/2013 Annual Financial Reports (Pp. 116, 132, 289, 312, 367 & 374 and Pp. 93, 110, 256, 284, 318 & 328 respectively). US\$1 = ₦160 and RM1 = ₦50

### 3.6 Sampling Technique and Sample Size

Stratified random sampling method was the sampling techniques applied in this research for the purpose of relevance in terms of pollution emissions, effluents and degradation (Enahoro, 2009). This was done by classifying the population into sectors and selecting at random from each sector. More weights (number of companies) were given to the oil & gas and manufacturing sectors because they have the highest propensity of environmental pollution impact (Monteiro & Aibar-Guzman, 2010). According to Enahoro (2009), 5% sample size is acceptable for generalization. However, for the purpose of this research a bigger sample size of at least 60 companies out of the population of 81 companies was sizeable enough. The sample selection was based on the criteria in Table 3.3.

Table 3.3  
*Criteria for Sample Selection*

S/N	Criterion
1.	The companies must be registered firms and operating in Nigeria.
2.	The companies must belong to an industry characterized by environmental pollution propensity (Monteiro & Aibar-Guzman, 2010).
3.	All non-environmentally sensitive or environmentally insensitive firms are excluded.

Firms selected were those under the following industries: agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil & gas. From these six sectors, 81 companies were generated. Financial statements of these firms published in the NSE FactBook of 2011/12, 2012/13 and/or on the website were used mainly targeting records from 2009-2014. Standard sampling selection technique was applied in selecting the sample size. For the purpose of this research,

the sample relation formulae of Collins & Schultz as applied by Enahoro (2009), Kantudu (2006), and Nyor (2008) was adopted. It is given as:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = desired sample size

N = total population of the research

e = marginal error or accepted error limit (0.05 on the basis of 95% confidence level)

Therefore, in determining the sample size of this research, the population of 81 and the marginal error percentage of 5% were substituted in the formulae thus:

$$\begin{aligned} n &= \frac{81}{1 + 81(0.05)^2} \\ &= 67.3597 \\ &= 67 \end{aligned}$$

The result was approximately 67 firms as the sample size for this research. As mentioned earlier, the technique involved in selecting these 67 from the entire population was based on stratified random sampling technique in which, companies in the population were classified into six sectors of agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil & gas industries (Appendix C).

A sample size of 67 seems an acceptable figure as Uwuigbe (2012) used only 30 firms listed in the NSE to test for the significant levels of web-based corporate sustainability disclosures, while Yusoff (2013) used 50 firms each from Malaysia and Australia for his study. Comparison between the sample sizes of Uwuigbe (2012) and Yusoff (2013) shows that the sample size for this research approximately averaged the two which, is given as approximately 82.72% of the total population of 81 companies. In the light of this, 82.72% of firms were selected at random from each of the six sectors that make up the sample size. The resultant sample size therefore, were 4, 8,

8, 23, 5, and 19 for agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil & gas sectors respectively (Appendix C & D).

The decision to increase the number of firms in the oil and gas industry was due to the fact that the oil and gas industry is the most environmentally sensitive sector in the Nigerian economy and occupies a unique and sensitive position, accounting for over 90% of federal government revenue and/or foreign exchange (Ayoola & Olasanmi, 2013). The annual reports and financial statements of these companies for a 6-year period published in the 2011/12 and 2012/13 NSE FactBook and on the website (but precisely targeting 2009 to 2014), were used to obtain data on their financial and sustainability reporting records.

Firms in the sample have been coded for simplicity purpose (Appendix D & E). The category of industry/sector were coded as AGS, CRE, HCS, IGS, NRS and OAG for agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil & gas industries respectively. In each category, the codes were numbered serially starting from 001 to 006 and the samples constitute all registered companies in Nigeria, be it foreign or local. Once again it is stressed that the annual reports (financial and/or sustainability) were used for data collection purposes in relation to financial, administrative, and sustainability information. This information was used for analysis purposes and the conclusions thereof generalized for the entire industry.

### **3.7 Research Models Specification**

Sustainability disclosure involves reporting on environmental expenditure or cost for the purpose of control equipment and facilities (Aert, Cormier & Magnan, 2006; Enahoro, 2009). In countries like the United States the security and exchange

commission (SEC) regulations requires companies to disclose sustainability information. Aert *et al.*, (2006), observed that KPMG's report showed that 69% of 100 leading companies in industrialized nations mention sustainability information in their annual financial reports while 20% prepares separate stand-alone environmental reports compared to just 13% of companies in 1993. Companies of international standards like Roche (a Swiss conglomerate) and Danish company Nova Nordisk, are also reputable for sustainability disclosures. However, for proper evaluation of any relationship which constitutes the objective of this research, a research model must be developed.

The underpinning theory of this research work is the institutional theory with the stakeholder, legitimacy and capital need theories operating as supporting theories. This research seeks to establish the relationship between sustainability reporting (dependent variable) and the independent variables of environmental policy administrators, corporate financial performance, board characteristics, and corporate foreign ownership concentration. A control variable (industrial type) has also been considered. Therefore, the model specification estimating the cumulative performance of hypothesis  $H_{a1} - H_{a10}$  was derived thus:

$$ER(Y_{it}) = a_0 + \beta_1 PA1_{it} + \beta_2 PA2_{it} + \beta_3 CP1_{it} + \beta_4 CP2_{it} + \beta_5 CP3_{it} + \beta_6 BC1_{it} + \beta_7 BC2_{it} + \beta_8 BC3_{it} + \beta_9 BC4_{it} + \beta_{10} CO_{it} + \beta_{11} IT_{it} + \varepsilon_{it} \quad (i)$$

Where:

- $a_0$  = a constant value
- $\beta_n$  = coefficient of the independent variables
- $\varepsilon_{it}$  = residual or prediction error
- $pa1_{it}$  = NSE policy administrators
- $pa2_{it}$  = DPR/NESREA policy administrators
- $cp1_{it}$  = firm size
- $cp2_{it}$  = financial leverage
- $cp3_{it}$  = market-to-book value ratio
- $bc1_{it}$  = Board independence
- $bc2_{it}$  = duality
- $bc3_{it}$  = environmental experts
- $bc4_{it}$  = board size
- $co_{it}$  = foreign ownership concentration (foreign and local)

$it_{it}$  = industrial type

### 3.8 Data Description

For the purpose of this research, sustainability disclosure (dependent variable) constitute the basic elements and cost/expenditures on the following items of G4 standard and guidelines on sustainability reporting (Table 3.5):

1. Strategy and Analysis: - entails disclosure on items relating to firms' strategy, relevance, impact, risks and opportunities.
2. Organizational Profile: - discloses on firm's profile in relation to name, address, financial year-end, re-statement of accounts and audited reports.
3. Governance: - discloses organizational structure, mission & vision of firms, agreements with local community, industrial membership and the list of stakeholder.
4. Economic Issues: - entails disclosure on capital flow, firms' economic impact on society and the its impact on the economy as a whole.
5. Sustainability issues: - disclosure expected on this include material consumed, energy used, effluents, biodiversity & wastes and the existence of an environmental management department.
6. Social Issues: - discloses items related to the social policy of firms, organization's social responsibility, employment and management's relationship with the host community.
7. Labour Practices & Decent Work: - recorded workers health & safety and training & education policies of companies.
8. Human Rights Issues: - discloses equal rights and privileges enjoyed under fundamental human rights.

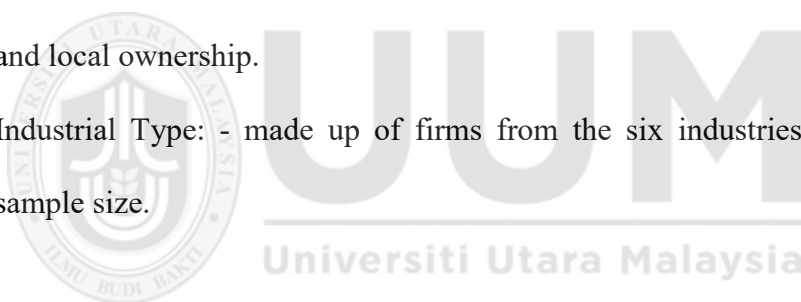


9. Product Responsibility: - records disclosure on environmental impact of the products of firms.

10. Ethical Policies on Environment: - discloses ethical codes of conduct on environmental policies.

The independent variables were described thus:

1. Environmental policy administrators: - includes the NSE, DPR, and NESREA.
2. Corporate performance: - this constitutes firm size, financial leverage, and market-to-book value ratio.
3. Board characteristics: - includes board independence, duality, environmental experts, and board size.
4. Foreign ownership concentration: - centred primarily on foreign ownership and local ownership.
5. Industrial Type: - made up of firms from the six industries that forms the sample size.



### **3.9 Variables of the Research**

#### **3.9.1 Dependent Variable**

The dependent variable of this research is sustainability reporting which is made up of three basic elements popularly known as the TBL which, encourages reporting on economic (profit), environmental (planet) and social (people) parameters; thus the term “Triple P” or “Mega Reporting”. For the purpose of this research, emphasis was laid on the effects of companies activities on the planet (environment). In measuring the effects of company’s activities on the environment, many studies have been conducted using the following versions of GRI standards and guidelines.

- a. GRI-1 (Adams & Frost, 2006; Wills, 2003)

- b. GRI-2 (Bassen, & Kovacs, 2008; Brown, de Jong & Levy, 2009; Guenther, Hoppe & Poster, 2006; Skouloudis, Evangelinos, & Kourmouisis, 2009)
- c. GRI-3 (Brown *et al.*, 2009; Dingwerth & Eichinger, 2010; Fonseca, 2010; Guenther, Hoppe & Poser, 2006; Toppinen, & Korhonen- Kurki, 2013)

For the purpose of this research however, the major indicators of environmental pollution as specified by GRI-4 (G4) were used as components of the dependent variable. These disclosures include 52 indicators (Table 2.2) summarized into 33 sub-items of the standard disclosures (SD) comprising both general standard disclosure (GSD) and specific standard disclosure (SSD) (Initiative, 2013). The disclosures were further moulded into 10 items of observations for the purpose of this research as depicted on Table 3.4. The major observations of the SD (dependent variable) include strategy & analysis, organizational profile, governance, economic issues, sustainability issues, social issues, labour practices & decent work, human rights, society and ethical policies; coded SD1 to SD10 (Table 3.5).

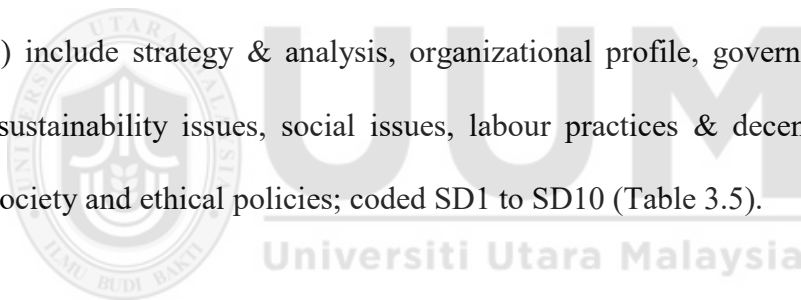


Table 3.4  
*Standard Disclosure Items (Dependent Variable)*

Code	Major items	Sub-Items	Score	Cumulative score
SD1	<b>STRATEGY &amp; ANALYSIS</b>	Relevance	1	<b>5</b>
		Strategy	1	
		Impact	1	
		Risks	1	
		Opportunities	1	
SD2	<b>ORGANIZATIONAL PROFILE</b>	Name of Firm	1	<b>5</b>
		Address of Firm	1	
		Accounting year-end	1	
		Re-statement	1	
		Auditing & Assurance	1	
SD3	<b>GOVERNANCE</b>	Organizational Structure	1	<b>5</b>
		Mission & Vision	1	
		Agreements	1	
		Industrial Membership	1	
		List of Stakeholders	1	
SD4	<b>ECONOMIC ISSUES</b>	Flow of Capital	1	<b>3</b>
		Economic Impact on Society	1	
		Impact on the Economy	1	
SD5	<b>SUSTAINABILITY ISSUES</b>	Material Used	1	<b>5</b>
		Energy	1	
		Effluents	1	
		Biodiversity & Wastes	1	
		Environmental Management Department	1	
SD6	<b>SOCIAL ISSUES</b>	Social Policy	1	<b>4</b>
		Organizational Responsibility	1	
		Employment	1	
		Management's Relationship with the Community	1	
SD7	<b>LABOUR PRACTICES AND DECENT WORK</b>	Health & Safety	1	<b>2</b>
		Training & Education	1	
SD8	<b>HUMAN RIGHTS ISSUES</b>	Equal Rights	1	<b>2</b>
		Privileges	1	
SD9	<b>PRODUCT RESPONSIBILITY</b>	Environmental Impact of the Product	1	<b>1</b>
SD10	<b>ETHICAL POLICIES ON ENVIRONMENT</b>	Environmental Code of Conduct	1	<b>1</b>
<b>Total</b>			<b>33</b>	<b>33</b>

*Source:* Computed by Author from G4 Guidelines

The level of compliance with these indicators by a firm over the period under consideration was computed through content analysis (Akbas, 2014). Content

analysis is a technique that assigns codes to qualitative information in anecdotal and literary form into different segments in order to get quantitative scales of different level of complexity (Akbas, 2014).

Ajibolade, Arowomole and Ojikutu (2010), Monteiro and Aibar-Guzman (2010), Uwuigbe (2012) and Yusoff (2013) have all adopted content analysis technique in previous studies on corporate social and environmental reporting. This research applied the simplest form of content analysis, which emphasizes the presence, or absence of sustainability information, where it is expected that at least one sustainability information was disclosed (Haniffa & Cooke, 2005; Magness, 2006). Corporate websites annual financial reports, stand-alone sustainability reports and annual financial statements were used to determine sustainability information disclosure (Branco & Rodrigues, 2007; Freedman & Jaggi, 2005; Uwuigbe, 2012). To this effect, it is assumed that firms with no stand-alone sustainability reports based their reporting on TBL reporting.

This research also emphasises on an approach that stresses the presence of “key indicators or items” of sustainability disclosures irrespective of their scope, length, depth or any other factor as applied by Clarkson, Richardson, and Vasvari (2008). Each item under the standard disclosure contains sub-items, which were scored (Appendix G). For each sub-item disclosed, a company was scored a dummy of 1 point. An item may score up to 5 points depending on the weighted scores assigned. Non-disclosure attracts zero score (0). The total maximum points to be scored by a firm over a particular period is 33 and the minimum is zero (0). The total scores were then averaged to determine the disclosure index for each observation (Ajibolade, Arowomole & Ojikutu, 2010). From this, the overall result was determined during the period 2009-2014 (Ahmad *et al.*, 2003; Monteiro & Aibar-

Guzman, 2010; Sulaiman & Mokhtar, 2012). For the purpose of this research, this index is termed Simple Average Disclosure Index (SADI) which is arrived at by taking the simple average score of a firm for a particular period. In the end, the total rate of compliance (SADI) was regressed with the independent variables to determine the degree of influence, association or relationship and level of significance the independent variables have on the dependent variable.

### **3.9.2 Independent Variables**

As already discussed, the four independent variables for this research constituted 10 dimensions categorized into four groups. They include:

1. Environmental Policy Administrators: - For environmental policy administrators the research analysed the monitoring operations of the main environmental enforcement agencies in Nigeria (DPR and NESREA) together with the NSE, which has been given a new role in environmental matters by virtue of it being a member of UNSSEI. Their contributions was measured in terms of mean value index (MVI) (Hossain, Islam & Andrew, 2006).
2. Corporate Performance: –firm size, financial leverage, and market-to-book value ratio.
3. Board Characteristics: - board independence, duality, environmental expert and board size.
4. Foreign Ownership Concentration: - foreign ownership or local ownership

Unlike other studies where just few elements of each variable were used, this research combines these elements into sets of four groups and applied them.

Table 3.5  
*Measurements of Independent Variables*

<b>Independent Variable</b>	<b>Measurements</b>	<b>Source</b>
<b>ENVIRONMENTAL POLICY ADMINISTRATORS</b>		
DPR, NESREA & NSE	Mean Value Index	Hossain, Islam & Andrew, 2006; Enahoro, 2009; Sulaiman & Mokhtar, 2012
<b>CORPORATE FINANCIAL PERFORMANCE</b>		
Firm Size	Value of Total Assets (Log <sub>10</sub> )	Monteiro & Aibar-Guzman, 2010
Financial Leverage	Long-term Debt/Equity	Andrikopoulos & Kriklani, 2013
Market-to-Book Value ratio	Market value/Book value	Andrikopoulos & Kriklani, 2013
<b>BOARD CHARACTERISTICS</b>		
Board independence	Non-executive/Executive membership	Eng & Mak, 2003; Barako, Hancock & Izan, 2006
Duality	Dummies of 0 and 1 for dual/single role of CEO	Barako, Hancock & Izan, 2006
Environmental Experts	Dummies of 0 and 1 for absence/presence of environmental experts	Sulaiman & Mokhtar, 2012
Board Size	Total number of board members	Cheng & Courtenay, 2006
<b>CORPORATE FOREIGN OWNERSHIP CONCENTRATION</b>		
Foreign ownership concentration	Dummies of 0 and 1 for local & foreign ownership	Monteiro & Aibar-Guzman, 2010

### 3.9.3 Control Variable

According to the online Helmenstine (2011), a control variable is “a variable that is held constant in order to assess or clarify the relationship between two other variables”. The control variable for this research is industrial type which takes cognisance of the degree of environmental damages caused by each sector/industry. This research recognized 67 firms grouped into six industrial sectors on the assumption that each of the firms selected belong to one of the industries. Although the entire study is on environmentally sensitive companies, the industrial type seek to set out environmental characteristics unique to specific industries. Therefore, each industry is viewed differently from others in the six sectors covered by this research. Hence, a separate identity for each. For this reason, the six sectors under observation

and which includes agriculture, construction/real estate, healthcare, industrial goods, natural resources and oil and gas were scored 1, 2, 3, 4, 5 and 6 respectively. For analysis purpose, the control variable (industrial type) was coded IT.

### **3.10 Measurement of Variables: Estimation Techniques and Rating Scale**

#### **3.10.1 Sustainability Reporting**

Likert scale rating for compliance index was adopted in assessing sustainability reporting level in the sampled companies (Ahmad *et al.*, 2003; Sulaiman & Mokhtar, 2012; Monteiro & Aibar-Guzman, 2010). There were 52 indicators of disclosure in G4 disclosure guidelines (Table 2.2). These indicators were reduced to 33 based on relevance and grouped into 10 major items (Table 3.4, Appendix F & G). Each item disclosed attracts one score while non-disclosure attracts zero score. After recording the scores of a company for a particular period, the simple average disclosure index (SADI) was then computed by taking the average score of the 33 indicators. The SADI then becomes the index for measuring the level of disclosure in percentage terms (dependent variable). The SADI scale ranges from 0 (lowest index) to 1 (highest index). The higher the SADI, the higher the level of disclosure. Depending on the strength (weight) of each of the 10 groups, items may have total scores of 1, 2, 3, 4 or 5 (Appendix G). Furthermore, primary data for environmental policy administrators were deduced to secondary data as qualitative and quantitative data were encompassed in secondary data employed in both descriptive and explanatory analysis (Cooper & Schindler, 2003).

#### **3.10.2 Environmental Policy Administrators**

##### **3.10.2.1 Nigerian Stock Exchange**

A Likert scale of between 0-5 through compliance survey (Questionnaire) was applied to show the level of compliance with NSE guidelines by affected companies

(Hossain *et al.*, 2006; Enahoro, 2009; Sulaiman & Mokhtar, 2012). Non-compliance attracts zero scores while the level of compliance is scored between 1 and 5. Higher scores represents higher levels of compliance, while lower scores denotes lower levels of compliance (Table 3.8). The total average scores was then computed into a mean value index (MVI) which is expressed as a ratio of total scores obtained to total targeted scored multiply by five. The MVI measures the level of compliance with sustainability disclosure standards and guidelines. Thus, the scale of measurement ranges from 0 (unacceptable) to 5 (very good) as shown on the “key for mean value index” on Table 3.7. The MVI was then correlated with the SADI to establish if any significant relationship exists between NSE and sustainability disclosure. It should be noted that nine (9) indicators (items) were used to determine the MVI of NSE compliances (Table 3.6). This instrument which is an evidence-based policy survey maximizes the use of best quality research to inform policy driven decision-making which, is valuable for evidence-based policy activities (Lancaster, 2014).

Table 3.6  
*Mean Value Index Scale (NSE)*

S/N	Items	Code	Scores					
			0	1	2	3	4	5
1.	Number of registered firms.	<b>REF</b>						
2.	Sector’s non-environmental impact.	<b>SEI</b>						
3.	Firms environmental policies and strategies.	<b>FPS</b>						
4.	The employment of Environmental experts as part of management team.	<b>EMT</b>						
5.	The strength of Environmental Standards and Guidelines for the sector.	<b>SSG</b>						
6.	Companies’ disclosure of sustainability information.	<b>EIM</b>						
7.	Compliance with GRI sustainability disclosure standards and guidelines.	<b>GED</b>						
8.	Compliance with other international sustainability disclosure standards and guidelines.	<b>IED</b>						
9.	Lack of obstacles to the enforcement of environmental rules.	<b>OER</b>						
<b>Total</b>								
<b>Mean values index = [(total scores obtained/total expected (45))*5]</b>								

**KEY FOR MEAN VALUE INDEX**

0.00-0.00 = unacceptable      1.01-2.00 = poor      3.01-4.00 = good  
0.01-1.00 = very poor      2.01-3.00 = fair      4.01-5.00 = very good



### 3.10.2.2 DPR/NESREA

A survey was conducted on DPR and NESREA officials using a Likert scale compliance survey questionnaires to determine the level of compliance with environmental guidelines and standards by companies in the agricultural, construction/real estate, healthcare, industrial goods, oil & gas and natural resources industries (Ayoola and Olanmi, 2013; Enahoro, 2009; Sulaiman and Mokhtar, 2012) as in NSE above. The same process for the determination of the MVI for NSE was also applied. The only exception being that for DPR and NESREA 12 indicator items were used as opposed to the nine items for NSE (Table 3.7). The significance of this instrument in data collection is as pointed out above by Lancaster (2014) above under the NSE.

Table 3.7  
*Mean Value Index Scale (DPR & NESREA)*

S/N	Items	Code	Scores					
			0	1	2	3	4	5
1.	Number of registered firms.	<b>REF</b>						
2.	The employment of Environmental experts as part of management team.	<b>EMT</b>						
3.	Companies' disclosure of sustainability information.	<b>EIM</b>						
4.	Compliance with local environmental standards and guidelines.	<b>ESG</b>						
5.	Compliance with GRI sustainability disclosure standards and guidelines.	<b>GED</b>						
6.	Compliance with other international sustainability disclosure standards and guidelines.	<b>IED</b>						
7.	The extent of monitoring by local environmental agencies.	<b>EML</b>						
8.	Lack of obstacles to the enforcement of environmental rules.	<b>OER</b>						
9.	Non-sanctioned for violation of sustainability information disclosure.	<b>NVE</b>						
10.	Level of local investment attracted because of sustainability disclosure.	<b>LIA</b>						
11.	Level of foreign direct investment (FDI) attracted because of sustainability disclosure.	<b>FIA</b>						
12.	Prospects for future improvements	<b>PFI</b>						
<b>Total</b>								
<b>Mean values index = [(total scores obtained/total expected scores (60))*5]</b>								

#### **KEY FOR MEAN VALUE INDEX**

0.00-0.00 = unacceptable      1.01-2.00 poor      3.01-4.00 = good

0.01-1.00 = very poor 2.01-3.00 = fair 4.01-5.00 = very good

It should be noted that while the main source of data for environmental policy administrators (DPR, NESREA and NSE) is from secondary, the data collection instruments (Table 3.7 & Table 3.8) were structured in the form of primary data; sourced and interpreted to find out secondary data as applied by Paquette, Bryant and De Wit (2011) and Lancaster (2014) on their studies of drug injections and policies endeavour.

### **3.10.3 Corporate Performance**

#### **3.10.3.1 Firm Size**

Company size was measured in terms of the natural logarithm of total assets (Monteiro & Aibar-Guzman, 2010), i.e.  $\text{Log}_{10}(\text{Total Asset})$ . The value of the logarithm shows the magnitude of the company size. Firms with higher logarithm values were considered bigger in terms of asset base, while the smaller the logarithm value, the smaller the firm size. In most developing economies, foreign companies and multinational corporations are bigger in terms of asset base.

#### **3.10.3.2 Financial Leverage**

Financial leverage is usually measured as a ratio of total debt to total assets (Clarkson, Overell, & Chapple, 2011). This research however, adopts the measurement of financial leverage as applied by Andrikopoulos and Krikilani, (2013). Their measurement was given as a ratio of total debt to total equity, a measurement that shows the proportion or percentage of total equity that constitutes debt capital. Essentially, financial leverage is one of the tools that could be used to measure debtors financial status.

### **3.10.3.3 Market-to-Book value Ratio**

Andrikopoulos and Kriklani (2013) explained that the market value could be a measure of the future present value of returns on equity. Their disclosures have the effect of reducing firm's uncertainty on the part of the investor and simultaneously reducing cost of capital; thus increasing a firm's market value. Specifically, market-to-book value ratio is an indication of the growth of the firm since incorporation. The market-to-book value is given as a ratio of a firm's market value to its book value (Andrikopoulos & Kriklani, 2013).

### **3.10.4 Board Characteristics**

#### **3.10.4.1 Board Independence**

Board independence was expressed as a ratio of non-executive to executive members of the board of directors, which is a slight modification on the measurement applied by Barako *et al.*, (2006<sup>a</sup>). Their measurement was given as a ratio of outside Directors to inside Directors expressed as a percentage. The measure adopted for this research gives an estimation of the proportion of non-executive members in the board of directors.

#### **3.10.4.2 Duality**

This variable is measured by assigning dummies of 1 for single role of CEO and 0 for double role of CEOs (Barako *et al.*, 2006<sup>b</sup>). This measurement tells the number of CEOs serving either as Directors only or as Directors and Chairperson of their organizations' board of directors. The computed value of these dummy scores indicates the percentage of CEOs complying with the legal requirements on board of directors as against non-compliance (Corporate Governance guidelines of 2011).

#### **3.10.4.3 Environmental Experts**

This variable was measured by the adoption of an EMA/EMC system of a management team in an organization. A dummy of 1 marks was awarded for an organization that have at least an individual playing the role of environmental expert in the organization and the dummy 0 mark for an organization that does not have any environmental expert in its board of directors (Sulaiman & Mokhtar, 2012). This measurement helps is determining whether or not an environmental expert was in the company's management.

#### **3.10.4.4 Board Size**

The yardstick used in measuring this variable was absolute scores in terms of total board membership (Cheng and Courtenay, 2006). In other words, it is only the total membership of the board that was considered for analysis purposes. It shows whether or not the total board members meets the minimum legal requirement of five (5) board members (SEC Code, 2011). The more members there are in the board, the more will sustainability information disclosure be made. The smaller the number of members in the board, the lesser the disclosure of sustainability information.

#### **3.10.5 Corporate Foreign Ownership Concentration**

Various measurements have been used for foreign ownership concentration. Foreign ownership concentration could be measured in terms of managerial ownerships, block holder ownership, private ownership, local ownership and government ownership (Eng & Mak, 2003). Most literature on foreign ownership concentration has concentrated on government, block holder, and managerial ownerships. Al-Farooque (2010), Delgado-Garcia *et al.*, (2010); Fauzi, & Locke (2012), NSE FactBook (2011/2012 and 2012/2013) and Maquieira *et al.*, (2012)

measured foreign ownership concentration in terms of percentages. Other researchers have measured foreign ownership concentration using the ratio of type of ownership members in the board (Alves, 2012; Lappalainen, & Nishanen, 2009; Mangena, Tauringana, & Chamisa, 2012). Aslan and Kumar (2012) used a special “membership ratio” to measure it. Prado-Lorenzo, Gallego-Alvarez and Garcia-Sanchez (2009) used dummy values for their application of foreign ownership concentration measurement. Similarly, dummies were applied in this research to measure firm ownership after the discovery that the use of percentages could lead to multicollinearity (Monteiro & Aibar-Guzman, 2010; Prado-Lorenzo *et al.*, 2009). In the application of dummies, 1 score was awarded for foreign ownership and 0 score for local ownership (Appendix F). This measurement enables the determination of the percentage of foreign investors in environmentally sensitive firms in Nigeria.

### **3.11 Methods of Data Collection**

As earlier mentioned secondary sources formed the data for this thesis. Even the Likert scale questionnaire used for MVI was based on the extraction of compliance (secondary) evidence-based data (Asuquo, 2012; Enahoro, 2009; Faux, 2008; Lancaster, 2014; Paquette, Bryant & De Wit, 2011). The questionnaire (Likert) covers environmental policy administrators only which, relied on records kept by the supervisory agencies on compliance rate. All other independent variables and the dependent variable relied on records from financial statements, stand-alone reports, and the website (where available) for their data. The questionnaire was devised to contain questions related to the concepts on sustainability disclosure compliance being tested. Usefulness and readability were also part of the qualities considered for it. Pre-testing was done with CEOs of the three environmental monitoring agencies

(NSE, DPR and NESREA) and technical and professional advice sought from them. The three pre-survey questionnaires were returned with adjustment and some professional advice. Chief Accounting Officers (CAO) and/or their environmental staff in government agencies affected by the research (NSE, DPR, and NESREA) were chosen for the exercise. A questionnaire was administered to each of the CEOs of these supervisory agencies and were returned as appropriate.

### **3.12 Techniques of Data Analysis and Evaluation**

Sustainability reporting in this research refers to the disclosure or non-disclosure of selected sustainability information by sampled firms. The techniques used for analysis were:

1. Content analysis
2. Graphical/diagrammatic display
3. Descriptive statistics
4. Correlation matrix
5. Regression analysis

Content analysis involves “codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity” (Branco & Rodrigues, 2007). Yusoff (2013), define content analysis as “a technique for gathering and analysing the content of text ... content covers words, meanings, pictures, symbols, ideas, themes, or any message that can be communicated ...” Gray, Kouhy and Lavers (1995<sup>b</sup>), asserted that content analysis depends heavily on the assumption that the rate of disclosure depicts the significance of an issue to the reporting firm. Moreover, it provides an opportunity for giving meanings, motivations and showing the intension of the communicator. Content analysis

encourages quantitative disclosure units such as number of words, sentences, pages, lines or “key items” (Criado-Jimenez *et. al*, 2008; Frost, 2007; O’Dwyer, 2003).

In analysing the results, content analysis technique was used to analyse some data. In the review of literatures, conceptual frameworks and theories related to sustainability reporting and development, existing knowledge in areas of the subject matter was discuss extensively and analysed theoretically. The results from the analysis formed the basis for a position to be adopted on the concept. Many theoretical principles were considered but this research finally settles for the institutional theory, stakeholder theory, legitimacy theory and capital need theory to base this research on.

Descriptive statistics and correlation were also used to help ascertain the mean, median, mode, and standard deviation together with the minimum and maximum values of each observation. Moreover, correlation analysis was applied to determine whether or not any relationship exists between the variables and if so, the type and strength of the relationships. The major tool used for this analysis was linear regression using StataSE13. In particular, the analysis tested for the discriminant values of correlation matrix,  $R^2$ -value, t-value and p-value. These were done after data screening and other diagnostic tests to determine whether there are significant relationships between the two variables, the level of change, and the degree of the level of change of the variables. The data were geared towards meeting the fundamental assumptions for t-test or p-value and ANOVA (OLS regression), which states as follows:

1. Data are of the ratio type
2. Samples were independently and randomly selected

3. Normality distribution of the population and
4. Standard deviation and variability were jointly similar.

### **3.13 Sources of Data**

Majority of data for this research were sourced mainly from both hard copies and online soft copies of corporate annual reports and financial statements of the sampled firms. Similar technique was employed by Campbell, Craven and Shrivess (2003), Enahoro (2009), Gray, Kouhy and Lavers (1995) and Owolabi (2007). The significance of annual reports in data collection stems from the fact that they are documents produced on regular basis and comply with statutory regulations and standards. For this reason, they could serve as the most important instruments for organizational construction of self-social image based on their validity, reliability and credibility (Enahoro, 2009). The documents used were sourced from the NSE, direct request from companies, CAC, companies' website and MAN. All data were related to the period 2009-2014, representing the dependent variable and nine of the 11 independent variables. The dependent variable's sustainability measurements were based on GRI-4 (G4) ratings. These rating were agreeable to Ahmad *et al.* (2003), Monteiro and Aibar-Guzman (2010), and Sulaiman and Mokhtar (2012) ratings of environmental measurements (Appendix F).

The sources of data on environmental policy administrators (DPR, NESREA and NSE) were captured using Likert scale, to determine the MVI (Enahoro, 2009; Hossain, Islam & Andrew, 2006; Lancaster, 2014; Paquette, Bryant & De Wit, 2011; Sulaiman & Mokhtar, 2012). This index was determined from nine (9) items (NSE) and twelve (12) items (DPR & NESREA) of information including availability of



environmental experts, guidelines, compliance, monitoring, sanctions, impacts, etc. (Appendix I & Appendix J). A summary of data available from our data source (10 dependent variable items and 10 independent variable items), for the 402 observation is display on Table 3.8.

Table 3.8  
*Summary of Data Sources*

Particulars	Dependent Variable		Independent Variables	
	Available	Missing	Available	Missing
Total	3365	655	3718	704
Average	336.50	65.5	338	64
Percentage	83.72	16.29	84.08	15.92
<b>Total Observations</b>		<b>4020</b>		<b>4422</b>

Total firms observed for the 6-year period were 67 companies. The record shows that available results for the 10 items of the dependent variable from the 67 firms for the 6-year period (2009-2014) was 3,365. For the 11 observations under the independent variables, it showed a result of 3,718 available data for the same period. This gives an average of 336.50 and 338 available items for the dependent and independent variables respectively forming in percentage terms, 83.72% and 84.08% of total available observations respectively.

The missing results on the other hand, showed a total of 655 and 704 for the dependent and independent variables respectively for the periods under investigation. An average result of 65.5 missing result representing 16.29% for the same period was recorded for the dependent variable, while an average of 64 representing 15.92% missing result for the independent variables was also received. The missing results were mostly due to partial submission and/or non-submission of financial reports by firms to the NSE. Overall, an average of 83.90% of data was collected as against 16.11% missing data.

### **3.14 Data Screening and Cleaning**

#### **3.14.1 Missing Data (Omitted Variables) Statistics**

The identification of “incomplete, incorrect and inaccurate parts of data” constitutes data cleaning (Alreyami, 2012; Lakkahnawanit, 2013). In all, this research observes some 20 items for the 67 companies in the sample. The items were classified into dependent variable and independent variables, constituting 10 and 10 items of variable elements respectively. Missing data were replace while incorrect and inaccurate data for specific or particular periods were excluded from the sample. The dependent variable items starting with strategy & analysis and ending with ethical environmental policies (coded SD1 to SD10) were expressed into an index that forms the Simple Average Disclosure Index (SADI). The independent variables constituted four major variable components: environmental policy administrators, corporate performance, board characteristics and corporate foreign ownership concentration. Environmental policy administrators composes of PA1 (NSE) and PA2 (DPR/NESREA), while corporate performance constitutes CP1 (firm size), CP2 (financial leverage), and CP3 (market-to-book value). Board characteristics was made up of BC1 (board independence), BC2 (duality), BC3 (environmental expert) and BC4 (board size). Foreign ownership concentration constitutes only CO (foreign ownership concentration) and IT (Industrial type) - Appendix F.

Between 65 and 67 data were missing for the items that make up the dependent variables. Concerning the independent variables, while the lowest values of 37 missing variable was recorded for firm size, NSE had the highest missing values of 261 (Table 3.9). This was mainly because data for the years prior to 2013 (2009-2012) were not available since the NSE only started sustainability disclosure monitoring by listed firms in 2013. Information for this item was therefore, available

only for 2013 and 2014. Foreign ownership concentration and industrial type on the other hand had no missing values. In all, 90.91% of the 22 items of the variables of the research have some missing values as could be seen from Table 3.10.

Table 3.9  
*Missing Data*

Item	Available Data	Missing Data	
		Count	Percentage
Strategy & Analysis	337	65	16.20
Organization Profile	337	65	16.20
Governance	337	65	16.20
Economic Issues	335	67	16.70
Sustainability issues	337	65	16.20
Social Issues	337	65	16.20
Labour Practices & Decent Work	337	65	16.20
Human Rights Issues	336	66	16.40
Product Responsibility	336	66	16.40
Environmental Ethical Policies	336	66	16.40
Simple Average Disclosure Index	337	65	16.20
Firm Size	365	37	9.20
Financial Leverage	362	40	10.00
Market-to-Book Value Ratio	350	52	12.90
Board independence	348	54	13.40
Duality	353	49	12.20
Sustainability issues	352	50	12.40
Board Size	348	54	13.40
Nigerian Stock Exchange	141	261	64.90
DPR/NESREA	332	70	17.40
Foreign ownership concentration	402	0	00.00
Industrial Type	402	0	00.00

### 3.14.2 Replacement of Missing Data

Using SPSS22 tool of analysis missing data on the 20 items under observation plus SADI, were replace with the “median of nearby points” at “all number span”. Table 3.10 shows the new function “No. of Replaced Missing Values” created for the replaced variables (Appendix K – Replaced Missing Variables).

Table 3.10  
*Replaced Missing Values*

<b>Result Variable</b>	<b>No. of Replaced Missing Values</b>
Strategy & Analysis	65
Organization Profile	65
Governance	65
Economic Issues	67
Sustainability issues	65
Social Issues	65
Labour Practices & Decent Work	65
Human Rights Issues	66
Product Responsibility	66
Environmental Ethical Policies	66
Simple Average Disclosure Index	65
Firm Size	37
Financial Leverage	40
Market-to-Book Value	52
Board independence	54
Duality	49
Sustainability issues	50
Board Size	54
Nigerian Stock Exchange	261
DPR/NESREA	70
Foreign ownership concentration	0
Industrial Type	0

### 3.14.3 Removal of Outliers

A data with unique characteristics such as usually high or low values distinct from other values in the same category in the data distribution is an outlier. Outliers are numerically a variant from other data in the dataset or observation and therefore, must be sorted out to avoid misrepresentation of the population, distortion of statistical tests and any counter to the research's objective (Hair, Black, Babin & Anderson, 2010). This research applied SPSS22 analytical tool to detect and test for the multivariate outliers by computing the mahalanobis distance. This distance according to Tsafe (2013), is a "mean of multivariate outliers" detection to measure the multidimensional position of each case compared with the centre of all cases on a set of variables". To get the most suited method for examining a complete variation (variable), the Mahalanobis/df measure should be conservative leading to values of 2.5 in samples of less than 80 cases; and 3 or 4 for bigger samples (Hair *et al.*, 2010).

For the purpose of this research a comparison was made between the Mahalanobis output and the  $\chi^2$  as stipulated by the probability value of less than 0.001 (Grande, 2016). Evidence of outliers were found because their Mahalanobis measure was below the probability threshold value of 0.001 (Grande, 2016). Although these were not extreme cases to meet the threshold, 13 cases were discovered and eliminated. This leaves the research with a sample size of 389 out of 402 initial observations. The 13 observations found unsuitable for the sample are given in Table 3.11.

Table 3.11  
*List of Outliers*

S/N	Firm Code	Year	Industrial Sector	Firm Name
1.	101	2013	Agriculture	FTN Cocoa Processing Plc.
2.	101	2014	Agriculture	FTN Cocoa Processing Plc.
3.	102	2013	Agriculture	Okomu Oil Palm Plc.
4.	102	2014	Agriculture	Okomu Oil Palm Plc.
5.	103	2013	Agriculture	Presco Plc.
6.	103	2014	Agriculture	Presco Plc.
7.	104	2013	Agriculture	Livestock Feeds Plc.
8.	104	2014	Agriculture	Livestock Feeds Plc.
9.	202	2012	Construction/Real Estate	Cappa & D'Alberto Plc.
10.	501	2013	Natural Resources	Aluminium Extrusion Industries Plc.
11.	501	2014	Natural Resources	Aluminium Extrusion Industries Plc.
12.	502	2012	Natural Resources	Aluminium Manufacturing Company Plc.
13.	619	2013	Oil & Gas	Total Nigeria Plc.

### 3.15 Dependent Variable's Validity and Reliability Test

#### 3.15.1 Validity Measurement of the Dependent Variable

In simple terms, validity is the extent to which a test measures what it claims to measure or how accurate an instrument is in measuring what it claims to measure. Min (2010) sees it as the ability of a measuring instrument to measure what it is intended to measure. The usefulness of validity measurement is to build confidence of scores accuracy and decision-making. Questions designed should be able to bring out expected outcome. One of the most important instruments of validity testing and measurement is the Kaiser-Meyer-Olkin & Bartlett (KMO) test. Statistical reliability

test was carried out using SPSS22 tool of analysis. The KMO coefficient reading of the measurement of the scale of the dependent variable of this research was found to be 0.883 significant at 1% level of significance. Further analysis for individual variables of the dependent variable showed results of not less than 0.720 with the exception of economic issues (Table 3.12 & Table 3.13). Compared to Min's (2010) result which, gives KMO values for measuring instruments of between 0.57 and 0.71, this result proves superior.

Table 3.12  
*Validity Statistics for Simple Average Disclosure Index*

<b>Item</b>	<b>KMO &amp; Bartlett's Test Extraction</b>
Strategy & Analysis	0.8340
Organization Profile	0.8720
Governance	0.7230
Economic Issues	0.0860
Sustainability issues	0.8810
Social Issues	0.8270
Labour Practices & Decent Work	0.7510
Human Rights Issues	0.8290
Product Responsibility	0.7570
Environmental Ethical Policies	0.7730
<b>Overall</b>	<b>0.8830</b>

Validity was also placed on the companies' data used on which the secondary data are based and made up of the companies' annual financial reports and stand-alone sustainability statements. These are reliable statutory reports that has been used in similar works (Campbell, Craven & Shrives, 2003; Enahoro, 2009; Uwuigbe, 2012). These documents are produced annually and regularly to comply with statutory standards. For this reason, audited annual reports are credible and reliable. Thus, the panel data 6-year annual survey for the 67 sampled companies was conducted using secondary data from financial reports (Enahoro, 2009). Questionnaires were also administered at DPR, NESREA (Ministry of Environment) and NSE because these are the apex environmental regulatory agencies in Nigeria.

### 3.15.2 Reliability Measure of the Dependent Variable

When measurements carried out on data are free from “errors” and are capable of yielding consistent results, it gives an indication of reliability (Min, 2010; Tsafe, 2012). Hair (2006), defines reliability as an assessment of the degree of consistency between multiple measurements of variables. The reliability data of the dependent variable for this research (SADI) was evaluated using Cronbach’s Alpha coefficient which, measures internal consistency. Min (2010) and Tsafe (2012) observed that the widely accepted lower limit of Cronbach’s Alpha is 0.70, which may further be reduced to 0.60 in exploratory research (Min, 2010). Table 3.13 below shows the general reliability statistics of the scale instrument used in the research. Based on preferred Cronbach’s Alpha of 0.70, it was agreed that the scale variable instrument used in this research was acceptable as it showed a result of 89.6% Cronbach’s Alpha at 1% level of significance (Tsafe, 2012).

Table 3.13  
*Reliability Statistics for Simple Average Disclosure Index*

Cronbach’s Alpha	Cronbach’s Alpha Based on Standardized Items	Number of Items	Significance
0.8960	0.9170	10	0.0000

Face content validity, expert advice and best practice in sustainability reporting were also considered (Enahoro, 2009). Due to its low KMO coefficient (Table 3.12), “economic issues” item was eliminated thus resulting to a KMO and Cronbach’s Alpha result for the SADI on Table 3.14.

Table 3.14  
*New Validity and Reliability Statistics for SADI*

No. of Items	KMO Value	Cronbach’s Alpha	Degree of Freedom	Significance
9	0.8810	0.9050	36	0.0000

### 3.16 Validity and Reliability Tests for Mean Value Index for DPR/NESREA & NSE

Table 3.15  
*Validity & Reliability of Mean Value Index Results*

Variables	Validity (KMO)	Reliability (Cronbach's Alpha)
NSE	93.23%	63.7%
DPR/NESREA	69.6%	74.2%

Validity and Reliability tests for the MVI used for the independents variables of NSE and DPR/NESREA were acceptable. Table 3.15 shows that the results exceeds the acceptable scores of the instruments used for both validity and reliability which should be greater than 65% and 60% respectively (Min, 2010).

### 3.17 Normality Test

Normality is a basic assumption for data analysis and it encompasses the shape of the data distribution of each variable and its correspondence to the normal distribution (Alreyami, 2012; Min, 2010). Being the yardstick for statistical evaluation, normality measures tries to posit a smaller variation from the normal distribution. When variations from normal distributions are high, statistical tests may tend to be invalid. There are different ways through which normality of data could be checked such as through histogram, normality plot, Kolmogorov-Smirnov, skewness and kurtosis values, Durbin-Watson, etc. This research however, adopts among the most popular approaches in testing normality, Shapiro-Wilk test, histogram and the p-plot tests.

Shapiro-Wilk test is a formal test of continuous data and the null-hypothesis and is design to answer the question of whether a data follow a normal distribution (Clapham, 2016, Grande, 2016 & Cann, 2016). When summarizing the result of



Shapiro-Wilk test only the “w” and “p-value” should be reported (Cann, 2016; Clapham, 2016). While the “w” statistics measures the normality of the distribution, the “p-value” measures a statistics at least as small as the observation if the null-hypothesis is true. Clapham (2016) suggested that when  $w = one$ , it shows that the distribution is perfectly normal and the null-hypothesis is true; and when the p-value is greater than 0.05, it means one may be unable to reject the null statistics. Grande (2016) laid more emphasis on the p-value stating that if it is less than 0.05 it means the distribution is not normal and the null-hypothesis should be rejected. With regard to its reliability however, Cann (2016) and Clapham (2016) warned that Shapiro-Wilk test can gives misleading answers therefore, it should not be relied upon alone. On the other hand, Grande (2016) sees it as a better test to use for normality. What constitutes the null hypothesis of the Shapiro-Wilk test is that the residuals of the data are normally distributed (Pantamee, 2014). Normal distribution occurs when  $p \geq 0.05$  (Clapham, 2016; Grande, 2016). The null hypothesis is tested:

$$H_0 \quad \text{the distribution of the residual is normal}$$

Table 3.16  
*Shapiro-Wilk test for Normal Data*

Var.	Obs	W	V	z	Prob>z
e	389	0.96958	8.168	4.991	0.00000

From Table 3.16,  $w = 0.96958$  and  $p = 0.0000$ . This implies that there is a significant difference from normality ( $w$  is less than 1), and that the null hypothesis should not be rejected since p-value is less than 0.05 (Clapham, 2016, Grande, 2016). Nonetheless, the  $w$  result showed a smaller variation from normal distribution due to the closeness of the “w” value to “1”. To avoid recording misleading answers another normality tests was conducted using histogram, kernel density estimate and p-plot graphs.

Skewness is a measure of asymmetry of distribution (Tsafe, 2012). It examines the distribution balance of whether it has shifted to the left, right or centre (Alreyami, 2012). An indication of substantial skewed distribution is demonstrated by values falling outside the  $\pm 1$  range (Hair *et al.*, 2010). Skewedness with value “1” indicate moderate skewness. As applied by Tsafe (2013), skewness value of more than twice its standard error is considered a departure from symmetry. The prime objective of using the histogram was to test for the skewness of our distribution with a skewness result value of zero. For the purpose of this research, the skewness values for measurement range from 0.20 to 0.90.

Kurtosis on the other hand, is a measure of the peakness or flatness of a distribution. It assesses the extent to which an observation clustered around a centered point. When compared to the normal distribution, it has a recommended range of between  $\pm 2$ . This research records a skewness range of between 0.20 and 0.90 (Figure 3.2 & Figure 3.3). A number within the  $\pm 2$  range. For kurtosis statistics, values from 1-10 are acceptable. The histogram on Figure 3.2 shows a kurtosis of about 3.4. Thus, all the values of the skewedness and kurtosis results from the histogram below fall within acceptable range a proof of normality.

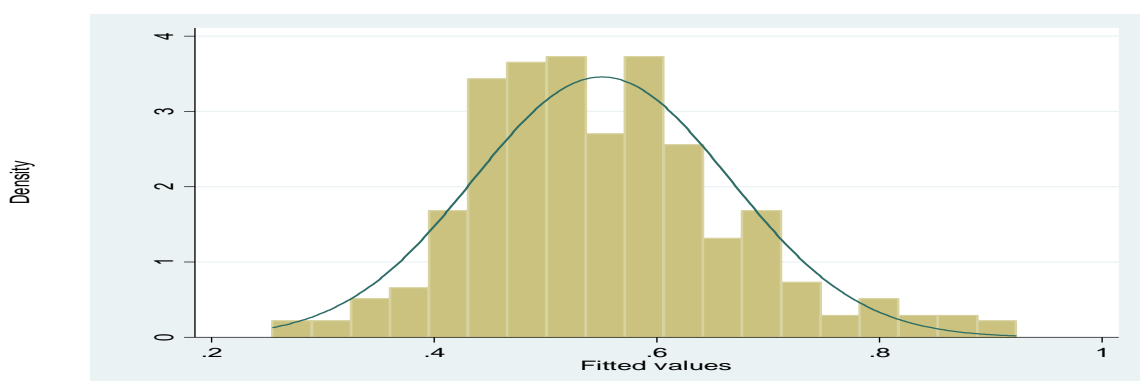


Figure 3.2  
*Histogram*

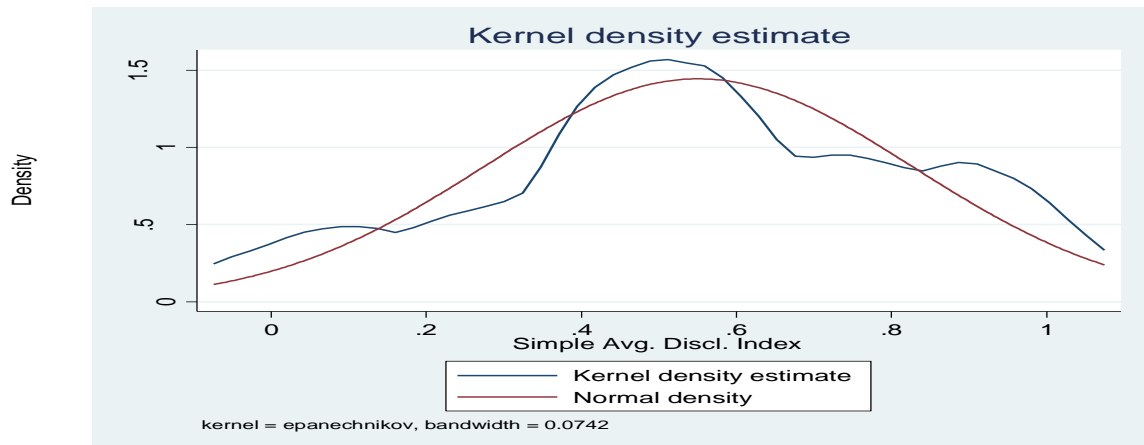


Figure 3.3  
*P-Kernel Density Estimate*

The third normality test used the P-Plot graph. Under this test, the dots on the graph should follow along the straight-line. Wider deviation from the line indicate that the data is not normally distributed (Clapham, 2016). The slope of the line is equal to the standard deviation. From Figure 3.4, it could be observed that deviation from the standard is minimal. In the single model of this research the P-Plot graph of the regression standardize residuals as shown in Figure 3.4 proves that the observed values fall almost along the straight line in the model. Alreyami (2012) also applied similar technique that indicate that the residuals are from a normally distributed population.

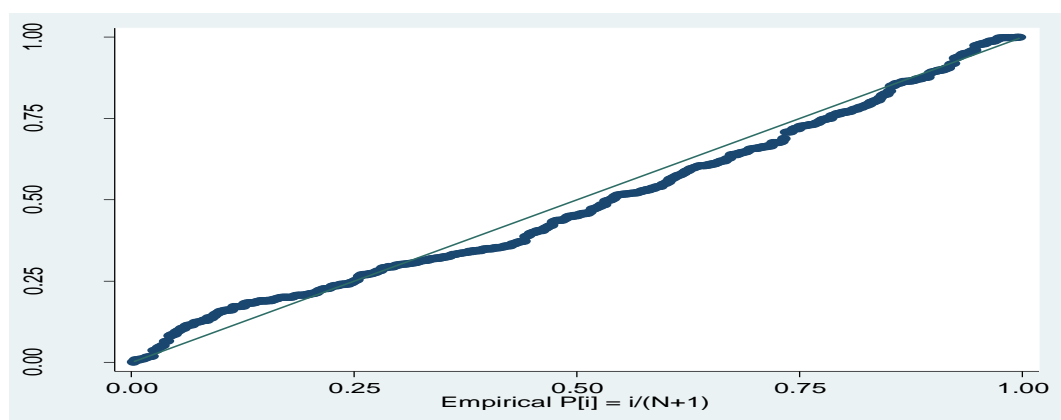


Figure 3.4  
*P-Plot Graph*

### 3.18 Summary of the Chapter

The relationship between the determinants of sustainability reporting and sustainability information disclosure have been tested by different theories. The most popular among them are the agency theory, the stakeholders theory, the legitimacy theory and the stewardship theory. Theories like the institutional theory and capital need theory are very uncommon with environmental and social reporting. This thesis therefore builds the relationship between some sustainability determinants (environmental policy administrators, corporate performance, board characteristics and corporate foreign ownership concentration) and sustainability reporting on the institutional and capital need theories in addition to the stakeholder and legitimacy theorist. Most importantly, the representation of the relationship between sustainability reporting and its determinant will define or indicate how the research problem will be explored. Conceptual review shows that these theories predicts positive relationships. The independent variables were built on these four relationships.

The chapter also discusses the research design. From a total population of 81 companies, 67 made the sample size. Tools of analysis include Excel 2013, SPSS22 and StataSE13. Normality tests carried out resulted in a reduction of the number of observations from 402 to 389. It is expected that a positive and significant relationship exists between environmental policy administrators and sustainability reporting. The research is also expected to show a significant association between sustainability reporting and the other independent variables of corporate financial performance, board characteristics, and foreign ownership concentration. In particular, it is expected that the results from our analysis points out the sector that impacted most on the environment. The result from the P-Plot, histogram, P-K

density and Shapiro-Wilk shows that the data is normal. Finally, both validity and reliability tests conducted gives very positive results. It could be seen that data for this research has undergone thorough screening with strong validity, reliability and normality results. For this reason, any analytical outcome from the data of this research is expected to be precise and accurate.



## CHAPTER FOUR

### RESULTS AND DISCUSSIONS

#### 4.1 Introduction

The discussion of results begins with a thorough analysis of the nature and trend of disclosure of sustainability information using the G4 disclosure index (here after referred to as SADI) as the yardstick for this research. Alreyami (2012) stated that analyses of data involves the estimation of  $\alpha$  (Alpha) and  $\beta$  (Beta) through the selection and application of appropriate data analysis strategy. Further, in the chapter descriptive statistics, correlation analysis, diagnostic test, regression analysis and test of hypotheses were given priority. Most importantly, this section attempts to provide answers to the “research questions, objectives and hypothesis”. In this regard, the major analytical tools applied using Excel 2013 and StataSE13 were descriptive analysis, correlation matrix and OLS regression analysis.

#### 4.2 The Nature and Trend of Sustainability Disclosure (Descriptive Statistics)

Descriptive statistics deals with the presentation of original data in such a way that enables description of the items under observation for easy evaluation and comprehension, thereby giving clear meanings of data through measures of central tendencies such as minimum and maximum values, mean, standard deviation, number of frequencies observed, etc. (Al-Matari, 2013; Alreyami, 2012). Of all these measurements Al-Matari (2013) and Alreyami (2012) observed that means and

standard deviations are scores that may have large influence on the regression result, they are therefore, a cause for concern.

Table 4.1  
*Descriptive Statistics of Sustainability disclosure of Sub-Items*

Code/Item	Sub-Item	Mean	Std. Dev.	Min.	Max.
<b>SD1</b> Strategy & Analysis	Relevance	0.7043	0.4569	0	1
	Strategy	0.9023	0.2973	0	1
	Impact	0.6607	0.4741	0	1
	Risks	0.6041	0.4897	0	1
	Opportunities	0.3162	0.4656	0	1
<b>Average (SD1)</b>		<b>0.6375</b>	<b>0.4367</b>	<b>0</b>	<b>1</b>
<b>SD2</b> Organizational Profile	Name of Firm	1.0000	0	1	1
	Address of Firm	1.0000	0	1	1
	Accounting Year-end	1.0000	0	1	1
	Re-statement	0.3213	0.4676	0	1
	Auditing & Assurance	0.4473	0.4979	0	1
<b>Average (SD2)</b>		<b>0.7537</b>	<b>0.1931</b>	<b>0.6000</b>	<b>1</b>
<b>SD3</b> Governance	Organizational Structure	0.5141	0.5004	0	1
	Mission & Vision	0.8278	0.3781	0	1
	Agreements	0.3907	0.4885	0	1
	Industrial membership	0.6247	0.4848	0	1
	List of Stakeholders	0.8303	0.3758	0	1
<b>Average (SD3)</b>		<b>0.6375</b>	<b>0.4455</b>	<b>0</b>	<b>1</b>
<b>SD4</b> Economic Issues	Flow of Capital	1.0000	0	1	1
	Economic Impact on Society	0.9974	0.0507	0	1
	Impact on the Economy	0.9974	0.0507	0	1
<b>Average (SD4)</b>		<b>0.9983</b>	<b>0.0338</b>	<b>0.3333</b>	<b>1</b>
<b>SD5</b> Environmental Issues	Material Used	0.8740	0.3322	0	1
	Energy	0.6452	0.4791	0	1
	Effluents	0.2468	0.4317	0	1
	Biodiversity & Wastes	0.2185	0.4138	0	1
	Environmental Management Department	0.3008	0.4592	0	1
<b>Average (SD5)</b>		<b>0.4571</b>	<b>0.4232</b>	<b>0</b>	<b>1</b>
<b>SD6</b> Social Issues	Social Policy	0.8638	0.3435	0	1
	Organizational Responsibility	0.2699	0.4445	0	1
	Employment	0.5964	0.4913	0	1
	Management's Relationship with the Community	0.2237	0.4172	0	1
<b>Average (SD6)</b>		<b>0.4885</b>	<b>0.3566</b>	<b>0</b>	<b>1</b>
<b>SD7</b> Labour Practice & Decent Work	Health & Safety	0.7532	0.4317	0	1
	Training & Education	0.2905	0.4546	0	1
<b>Average (SD7)</b>		<b>0.5219</b>	<b>0.4432</b>	<b>0</b>	<b>1</b>
<b>SD8</b> Human Right Issues	Equal Rights	0.3085	0.4325	0	1
	Privileges	0.7069	0.4558	0	1
<b>Average (SD8)</b>		<b>0.5077</b>	<b>0.4442</b>	<b>0</b>	<b>1</b>

<b>SD9</b> Product Responsibility <i>Average (SD9)</i>	Environmental Impact of the Product	0.3059 <b>0.3057</b>	0.4614 <b>0.4614</b>	0 <b>0</b>	1 <b>1</b>
<b>SD10</b> Environmental Ethical Policies <i>Average (SD10)</i>	Environmental Code of Conduct	0.3573 <b>0.3573</b>	0.4798 <b>0.4798</b>	0 <b>0</b>	1 <b>1</b>

A summary of the sub-items for the 67 firms surveyed during the period 2009-2014 shows that 389 observations were examined for each sub-item. From Table 4.1 above, disclosure by firms on environmental issues is measured using the G4 sustainability disclosure index. The various observations (sub-items) of the disclosure index has been grouped into 10 items (SD1 to SD10), representing strategy & analysis (SD1), organizational profile (SD2), governance (SD3), economic issues (SD4), environmental issues (SD5), social issues (SD6), labour practices & decent work (SD7), human rights issues (SD8), product responsibility (SD9) and environmental ethical policies (SD10). This was obtained by classifying the 33 major sub-items of G4 disclosures standard and guidelines.

From Table 4.1, the mean disclosure under the item strategy & analysis shows that except for opportunities all the sub-items were above 50%. This is an indication of a very strong disclosure by firms on company's strategic characteristics. It is only on firm's opportunities that disclosure is on average rated at 31.62%. Overall 63.75% average disclosure is made on strategy & analysis. With regard to organizational profile, the statistics on Table 4.1 shows that three of the sub-items have 100% disclosures. Restatement of financial reports and audited reports were however, disclose on an average at 32.13% and 44.73% respectively. This at the same time shows excellent and full disclosure of sub-items such as firm name, address and accounting period under the same item, recording 100% disclosure rate. This notwithstanding, restatement of accounts and auditing & assurance show that the level



of average disclosure was very good as it records 75.37% for organizational profile. Auditing and assurance gives credence to financial statements of firms.

Governance, which consists of five sub-items have four disclosures that records above 50% for its sub-items. A critical assessment of this item shows that while the majority of sub-items in the group have good disclosure rate, “agreements” shows a disclosure rate that is not very encouraging (39.07%). This implies that stakeholders interest are not well represented. Nonetheless, the average disclosure on governance stands at 63.75% which is very good. Perhaps the best disclosure is on economic issues as all the three sub-items are disclosed at the rate of approximately 100%. The rate of disclosure is this high mainly because the major source of data for this research are annual financial statements which, is dominated by firms economic and financial performances. Thus, overall disclosure rate for this item is 99.83% which is the highest rate recorded on the items.

On environmental issues, only two of the sub-items have mean disclosures of above 50%. Other sub-items like effluents, biodiversity & wastes, and environmental management department are disclosed at 24.68%, 21.85% and 30.08% respectively. This shows very poor disclosure rates which negatively impacted on the overall disclosure rate on environmental issues to give an average result of 45.71%. On the other hand, sub-items under social issues have neutral disclosure rates as two of the four items are below 50% disclosure rate. Their poor rate of 26.99% for organizational responsibility and 22.37% for management’s relationship with community gives a poor average disclosure rate for social issues item of 48.85%.

Labour practices & decent work gives a disclosure rate of 75.32% for health & safety and 29.05% for training & education. On average however, labour practices

scores a good 52.19% average disclosure rate. The same could be said for human right issues on which a good result of 50.77% average score is obtained. This is after sub-items in the group like equal rights records 30.85% and privileges records 70.69%.

Product responsibility which is a single sub-item disclosure has a very poor rate of 30.57%. The same applies to environmental ethical policies also a single sub-item, that has a disclosure score rate of 35.73%. Thus, both items records disclosure rate of far below 50% which, is an indication of poor products and environmental ethical performance of firms in environmentally sensitive industries in Nigeria.

Finally, the deviations from the mean disclosures are however, very good as none of the sub-items have a 100% deviation from the mean. Deviation from the mean ranges from zero (0) to 0.5004. In fact, sub-items like name of firm, address of firm, accounting year-end, and flow of capital shows zero (0) deviation from the mean. Moreover, a critical examination of the items shows that none of them gives an average deviation index of more than 51%. For the average minimum disclosure, majority of items shows zero (0) disclosure rate. However, items such as organizational profile and economic issues shows average minimum rates of 60% and 33% respectively. This comes about as a result of the fall in disclosure of firm name, address, financial year-end, and capital flow by all companies observed under this research. The average maximum disclosure rate for all the items is 100%.

#### **4.3 Analysis of the Nature of Sustainability Disclosure of Sub-Items by Sectors**

Sustainability disclosure in Nigeria is not a mandatory exercise therefore; disclosures made in this regard are voluntary (Enahoro, 2009). This section is

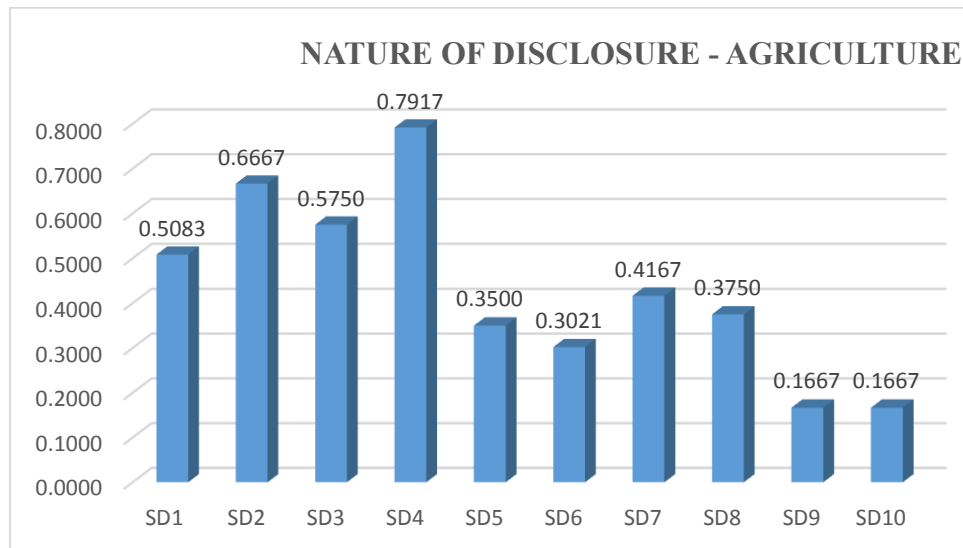
concern with sector-by-sector analysis of firms in the environmentally sensitive sector of the Nigerian economy, to see the level of disclosure by firms under observation. Each of the 33 sub-items of the dependent variable classified into ten (Appendix F), are analyze on industrial bases to show the level, nature and trend of sustainability disclosure by environmentally sensitive firms in the economy. Using graphs/diagrams and content analysis, the implications of the disclosure of each sub-item on both the sector and the economy is pointed out. A similar fit was applied by Hussein (2012) to evaluate disclosure using descriptive statistics, tables, graphs and figures/diagrams. The analysis therefore, seeks to provides answers to the first objective of this research in examining the nature and trend of sustainability reporting.

An evaluation of the overall impact of each of the 10 items of sustainability reporting was observed on sectorial basis. The items includes strategy & analysis, organizational profile, governance, economic issues, sustainability issues, social issues, labour practices & decent work, human rights issues, product responsibility and environmental ethical policies on products. These items will be analysed in order to show their individual disclosure by each sector.

#### **4.3.1 Agricultural Sector**

The best disclosure as depicted on Figure 4.11 is on economic issues (SD4) recording a disclosure level of 79.17%. Second to this is the disclosure on organizational profile (SD2) with 66.67% disclosure. Disclosure on strategy & analysis (SD1) and governance (SD3) shows rates of 50.83% and 57.50% respectively. All other disclosures are below 50%. They include sustainability issues (SD5) 35%, social issues (SD6) 30.21%, labour practice & decent work (SD7) 41.67%, human rights issues (SD8) 37.50%, product responsibility (SD9) 16.67% and

environmental ethical policies on products (SD10) 16.67%. This shows that about 60% of items were disclosed below 50%.



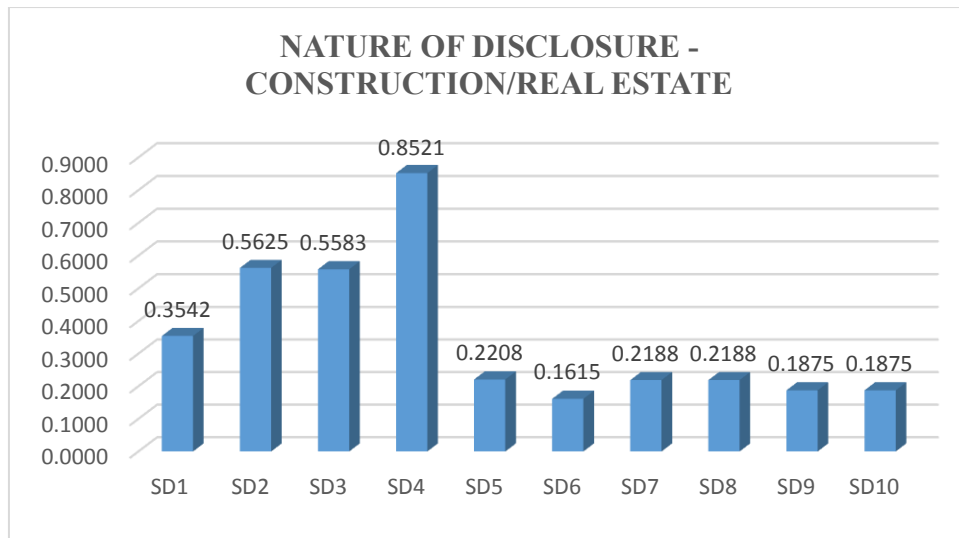
*SD1- strategy & analysis, SD2 – organizational profile, SD3 – governance, SD4 – economic issues, SD5 – sustainability issues, SD6 – social issues, SD7 – labour practices & decent work, SD8 – human rights issues, SD9 – product responsibility, SD10 – ethical policies on products*

Figure 4.1

*Nature of Disclosure - Agriculture*

#### 4.3.2 Construction/Real Estate Sector

Most of the disclosures in this sector fell below 40% (Figure 4.12). It is only items like organizational profile (SD2) 56.25%, governance (SD3) 55.83% and economic issues (SD4) 85.21% that have encouraging results. The result for strategy & analysis (SD1), sustainability issues (SD5), social issues (SD6), labour practices & decent work (SD7), human rights issues (SD8), product responsibility (SD9) and ethical issues on products (SD10) are 35.42%, 22.08%, 16.15%, 21.88%, 21.88%, 18.75%, and 18.75% respectively. Overall disclosure in this sector is very poor as only three items could boast of more than 40% disclosure rate.



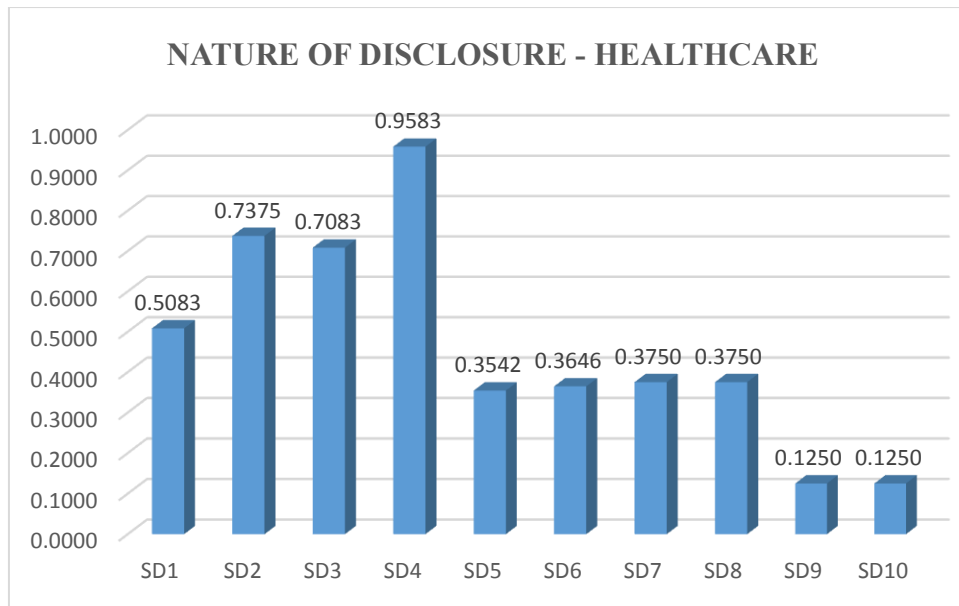
*SD1- strategy & analysis, SD2 – organizational profile, SD3 – governance, SD4 – economic issues, SD5 – sustainability issues, SD6 – social issues, SD7 – labour practices & decent work, SD8 – human rights issues, SD9 – product responsibility, SD10 – ethical policies on products*

Figure 4.2

*Nature of Disclosure – Construction/Real Estate*

### 4.3.3 Healthcare Sector

This sector has only three items showing disclosures of more than 50%. The remaining items have disclosures of not up to 50%. Figure 4.13 shows that strategy & analysis (SD1) has disclosure rate of 50.83%, organizational profile (SD2) 73.73%, governance (SD3) 70.83%, economic issues (SD4) 95.83%, sustainability issues (SD5) 35.42%, social issues (SD6) 36.46%, labour practices & decent work (SD7) and human rights issues (SD8) records 37.50% each and product responsibility (SD9) and ethical issues (SD10) shows disclosures of 12.50% each also. The majority of disclosures however, are above 35%.



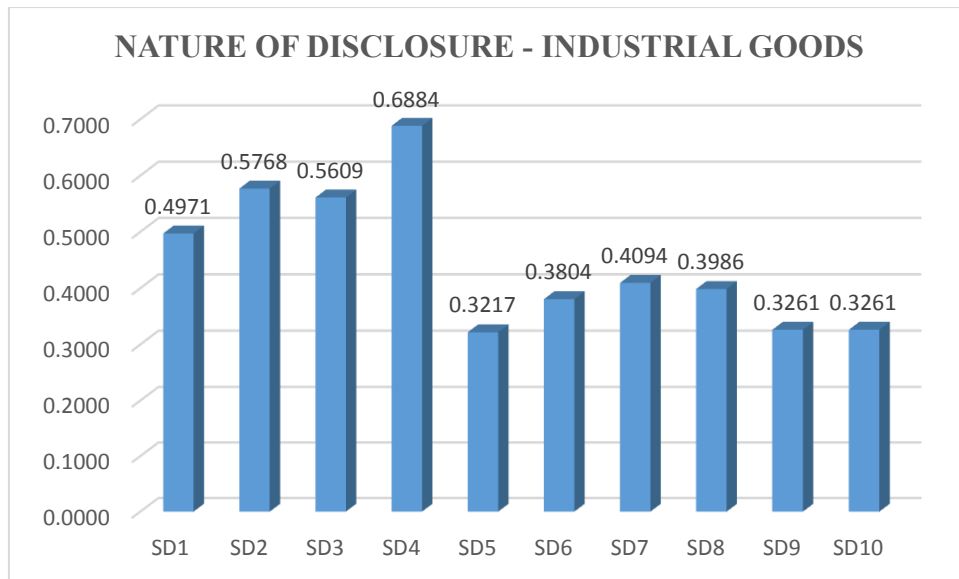
*SD1- strategy & analysis, SD2 – organizational profile, SD3 – governance, SD4 – economic issues, SD5 – sustainability issues, SD6 – social issues, SD7 – labour practices & decent work, SD8 – human rights issues, SD9 – product responsibility, SD10 – ethical policies on products*

Figure 4.3

*Nature of Disclosure – Healthcare*

#### 4.3.4 Industrial Goods Sector

Figure 4.14 below shows that disclosure on the 10 items for the industrial goods sectors is led by economic issues (SD) with a disclosure of 68.84%. Organizational profile (SD2) and governance (SD3) have disclosure rates of 57.68% and 56.09% respectively. Strategy & analysis (SD1) have a rate of 49.71%, sustainability issues (SD5) 32.17%, social issues (SD6) 38.04%, and labour practice & decent work (SD7) shows 40.94% disclosure rates. Other disclosures like human rights issues (SD8), product responsibility (SD9) and environmental ethical issues (SD10) have sustainability disclosure rates of 39.86%, 32.61% and 32.61% respectively.



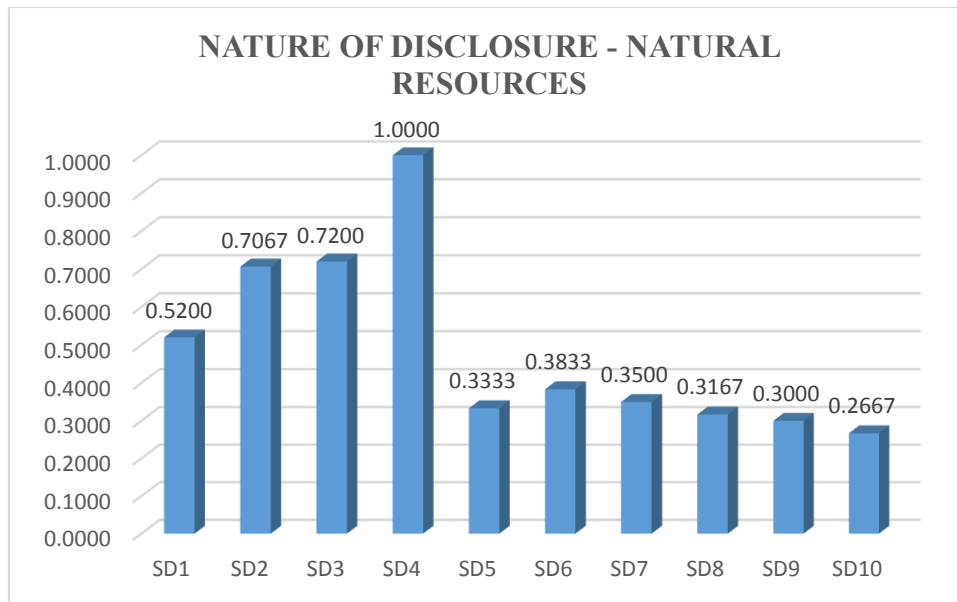
*SD1- strategy & analysis, SD2 – organizational profile, SD3 – governance, SD4 – economic issues, SD5 – sustainability issues, SD6 – social issues, SD7 – labour practices & decent work, SD8 – human rights issues, SD9 – product responsibility, SD10 – ethical policies on products*

Figure 4.4

*Nature of Disclosure – Industrial Goods*

#### 4.3.5 Natural Resources Sector

In the natural resources sector, Figure 4.15 shows that disclosure in this sector on economic issues (SD4) was 100%. This was followed by governance (SD3), organizational profile (SD2) and strategy & analysis (SD1) whose scores are 72%, 70.67% and 52% respectively. Disclosure by other items shows that sustainability issues (SD5) has 33.33%, social issues (SD6) 38.33%, labour practice & decent work (SD7) 35%, human rights issues (SD8) 31.67%, product responsibility (SD9) 30% and environmental ethical issues of the product (SD10) 26.67%. A kind of landslide relationship exists between the first four items and the last six items.



*SD1- strategy & analysis, SD2 – organizational profile, SD3 – governance, SD4 – economic issues, SD5 – sustainability issues, SD6 – social issues, SD7 – labour practices & decent work, SD8 – human rights issues, SD9 – product responsibility, SD10 – ethical policies on products*

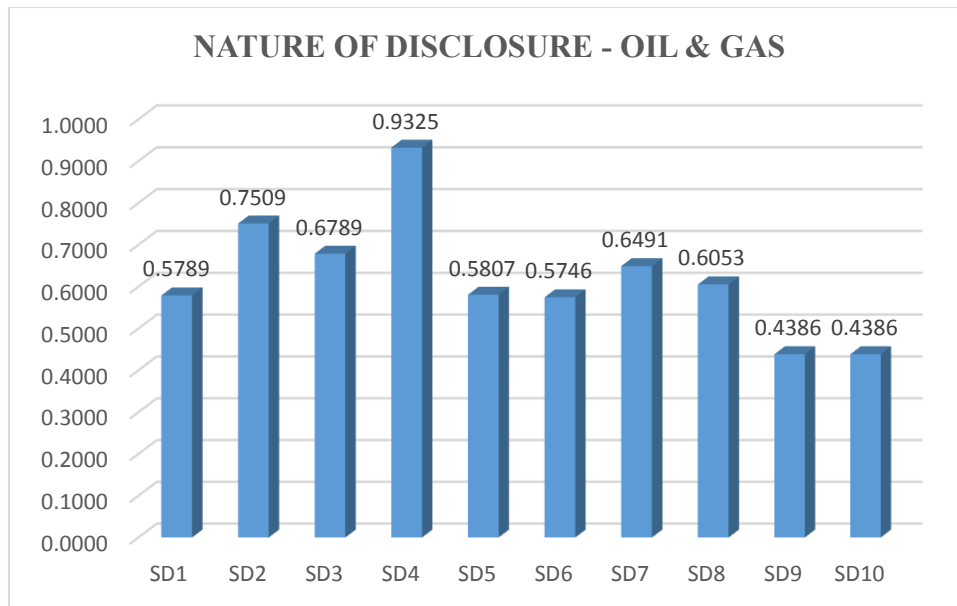
Figure 4.5

*Nature of Disclosure – Natural Resources*

#### 4.3.6 Oil & Gas Sector

Disclosure on economic issues in the oil & gas sector (Figure 4.15) is the highest (93.25%). In this sector, all but product responsibility (SD9) and ethical issues of products (SD10) each with a disclosure rate of 43.86%, have below 50% disclosure rate. On top of the disclosure list is economic issues recording 93.25%. Strategy & analysis (SD1), organizational profile (SD2), governance (SD3), sustainability issues (SD5) and social issues (SD6) shows rates of 57.89%, 75.09%, 67.89%, 58.07%, and 57.46% respectively. Others show disclosure rates of 64.91%, 60.53%, 43.86% and 43.86% for labour practices & decent work (SD7), human rights issues (SD8), product responsibility (SD9) and ethical issues (SD10) respectively. The pattern of disclosure displayed a similar pattern with disclosures in other sectors though this sector can boast of higher values of disclosure compared to other sectors.





*SD1- strategy & analysis, SD2 – organizational profile, SD3 – governance, SD4 – economic issues, SD5 – sustainability issues, SD6 – social issues, SD7 – labour practices & decent work, SD8 – human rights issues, SD9 – product responsibility, SD10 – ethical policies on products*

Figure 4.6

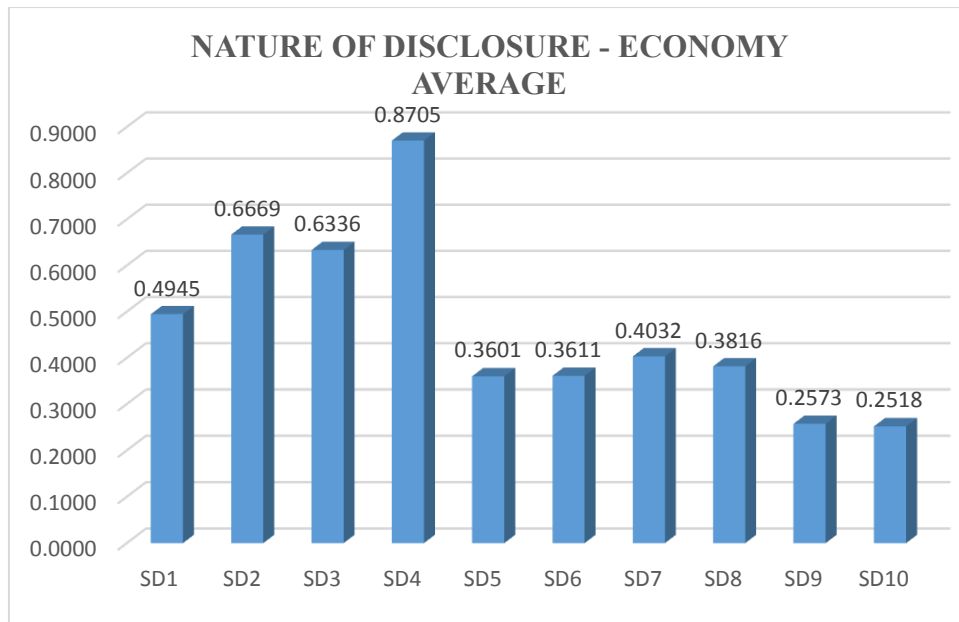
*Nature of Disclosure – Oil & Gas*

To conclude, the best disclosure was on economic issues (SD4) 87.05%. This was because the majority of information for this research was obtained from financial statements based on TBL and whose main concern was with the economic performance of firms. Due to the voluntary nature of sustainability disclosure in Nigeria, the majority of firms do not prepare separate sustainability reports. They instead do such disclosure on their annual reports. Only some multinationals or IOCs have sustainability reports for their disclosure. It is therefore, not surprising that the economic performance of companies is rank highest in this aspect of disclosure.

A critical examination of the pattern of disclosure for all the sectors gives a similar pattern, though some may have higher disclosure figures than others. There are higher disclosures for organizational profile (SD2), governance (SD3), and economic issues (SD4) in all the sectors. This cannot be divorced from the unique nature of items contained in these observations. For instance, a firm's name, address,

audited statement, mission & vision, objective, profit/loss statements, capital flow statements, etc. are all contained in all annual financial statements; as such, they are always disclosed. The diagrammatic depiction of the average sectorial disclosure result (Figure 4.17) shows a landslide pattern. While strategy & analysis (SD1) 49.45%, organizational profile (SD2) 66.69%, governance (SD3) 63.36% and economic issues (SD4) 87.05% formed the high slope, sustainability issues (SD5) 36.01% to ethical policies on environment (SD10) 25.18% gives a picture of the lower slope. The area between economic issues (SD4) and sustainability issues (SD5) depicting a “fault-line”. The result also skewed to the left indicating higher performance by items and observations on the left hand side than on the right hand side. From strategy & analysis (SD1), the distribution rose up steeply to economic issues (SD4) and then falls sharply and slopes towards the right (Figure 4.17).

In summary, environmentally sensitive firms in the economy performed below average on the 10 items observed in this research. The pattern of disclosure showed that all six sectors performed poorly on the last six items of observation, averaging less than 40% (Figure 4.17). These items consisted of sustainability issues (SD5) 36.01%, social issues (SD6) 36.11%, human rights issues (SD7) 40.32% and labour practices & decent work (SD8) 38.16%. Others are product responsibility (SD9) 25.73% and environmental ethical issues (SD10) 25.18%. With economic issues (SD4) 87.05% at the peak of disclosures, the graphical nature of disclosure was that it skewed slightly to the left producing a figure that slopes gently downwards to the right hand side (Figure 4.17).

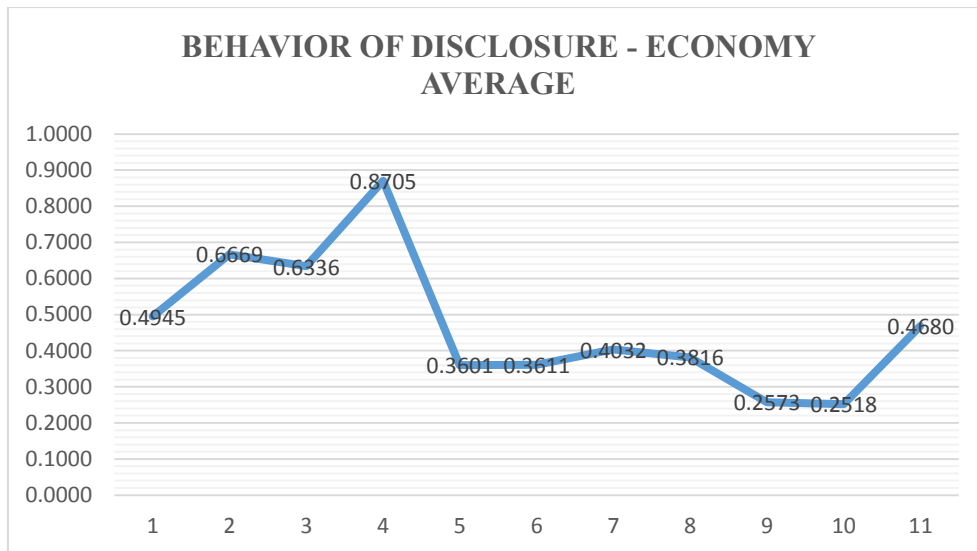


*SD1- strategy & analysis, SD2 – organizational profile, SD3 – governance, SD4 – economic issues, SD5 – sustainability issues, SD6 – social issues, SD7 – labour practices & decent work, SD8 – human rights issues, SD9 – product responsibility, SD10 – ethical policies on products*

Figure 4.7

*Nature of Disclosure – Economy Average*

The distribution pattern of disclosure follows the contours of an undulating plane, rising and falling between items from the agricultural sector to the oil & gas sector (Figure 4.18). This result is encouraging given the fact that the Nigerian economy does not recognize sustainability disclosure as mandatory (Enahoro, 2009). Nevertheless, the fact that government structures in Nigeria (like environmental agencies) have been in place for decades, should have made it possible for a better result than this. DPR, NESREA and States’ Environmental Protection Agencies (SEPA) have all been working towards ensuring compliance with environmental guidelines and standards for years. All these should have made a better result possible.



1- strategy & analysis, 2 – organizational profile, 3 – governance, 4 – economic issues, 5 – sustainability issues, 6 – social issues, 7 – labour practices & decent work, 8 – human rights issues, 9 – product responsibility, 10 – ethical policies on products, 11 – average

Figure 4.8

*Behaviour of Disclosure – Economy Average*

#### 4.4 Analysis of the Simple Average Disclosure Index (SADI)

For the purpose of our analysis, the SADI is used as the index for measuring firm's sustainability information reporting or disclosure (Appendix G). The index shows the percentage of sub-items disclosure by firms. An evaluation of environmentally sensitive companies reveals mixed but encouraging results. Of the six sectors classified, oil & gas has the best performance on sustainability disclosure. The result shows an index of 69.60% (Figure 5.19). The agricultural sector ranks second with an average disclosure score of 58.71%. This indicates that an average of 58.71% sustainability disclosure was made in the sector as it affects their operations. The industrial goods sector was ranked third in terms of SADI as a disclosure rate of 57.66% was scored by this sector. The fourth best-performed sector was healthcare sector with a score of 54.46%. Natural resources and construction/real estate sectors were in fifth and sixth positions accounting for 53.64% and 49.12% SADI disclosure respectively.

The excellent performance of the oil & gas sector in terms of sustainability reporting as shown on Figures 4.6, 4.9, 4.15, and 4.16 could not be unrelated to the sensitivity of the sector. Being the highest contributor to the economy as well as the highest polluter (Kasum, 2010), it might have been forced to comply with laid down rules and guidelines. Moreover, pressure from outside institutions (private and public) might have forced them to do more in terms of corporate governance to boost their image. It is also worth noting that major operators in this sector like SPDC, are multinationals. In their home countries, sustainability issues are mandatory as such, they are bound to comply with international sustainability disclosure standards. Other major operators in the sector are also IOCs“ which prepares their annual statements based on international standards. It is therefore, not surprising that the sector leads others in sustainability disclosure. The agricultural sector is one of the smallest in the economy. This small nature could be one of the major reasons for putting up such an impressive sustainability disclosure performance.

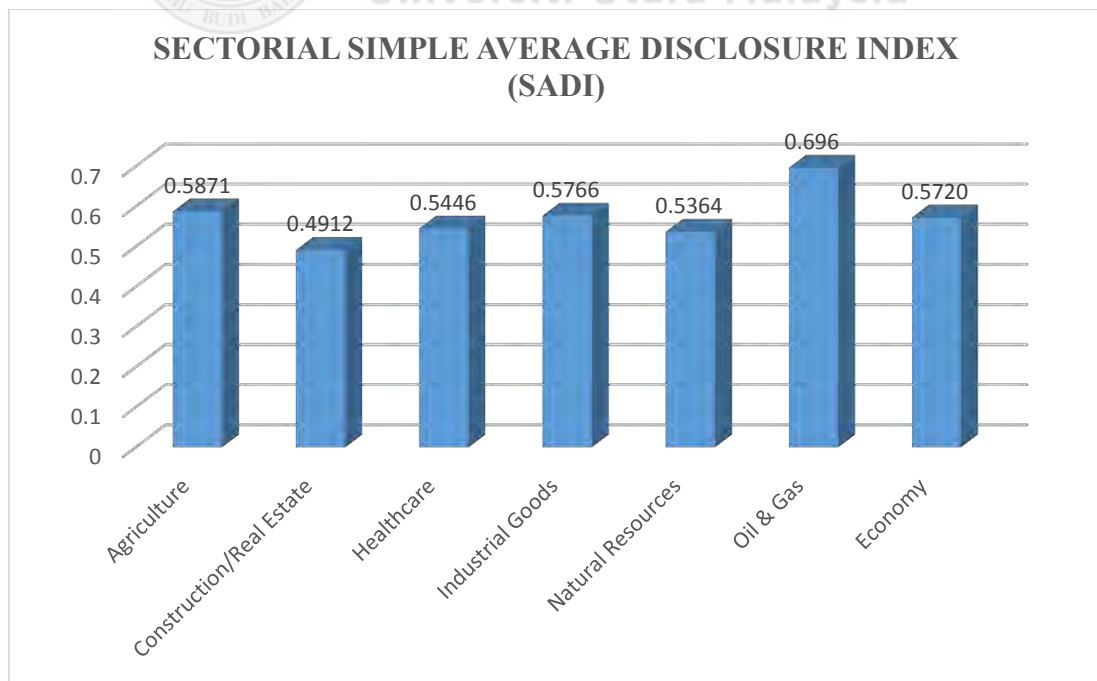


Figure 4.9  
Sectorial Simple Average Disclosure Index (SADI)

#### 4.5 Analysis of Sustainability disclosure Trend by Sector Reporting

This section answers another of our objectives for this research in the form of annual disclosure trends and the likely factors that might have influence it. An assessment of the trend of disclosure over the 6-year period observed (2009-2014) revealed some interesting results. Attempt is also made to discuss the general factors responsible for and the implications of such trend on disclosure as it affects firms in each sector and the economy as a whole.

##### 4.5.1 Agricultural Sector

From Figure 4.20, the trend in the agricultural sector saw disclosure of 29.55% in 2009. This jumped to 72.73% in 2010 only to fall to 59.09% in 2011. By 2012, disclosure has increased again to 71.97%, a level that was maintained until 2014. On average however, sustainability disclosure in this sector was 62.75%.

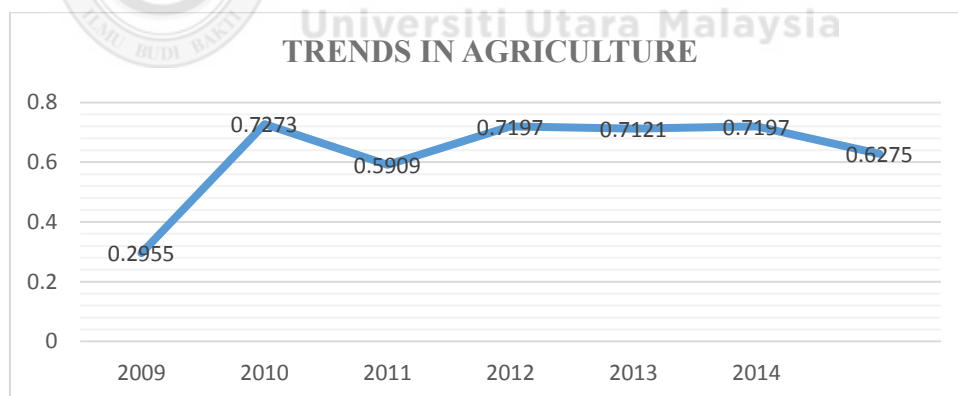


Figure 4.10  
*Trends in Agriculture*

##### 4.5.2 Construction/Real Estate Sector

For the construction/real estate sector as illustrated on Figure 4.21, from 35.61% in 2009 disclosure increases to 53.03% but again, fall in 2011 to 34.85%. However, from 2012 to 2014 the trend was positive with disclosure being recorded at

53.03%, 58.79% and 59.39% for 2012, 2013 and 2014 respectively. The average disclosure of the sector was 49.12%.

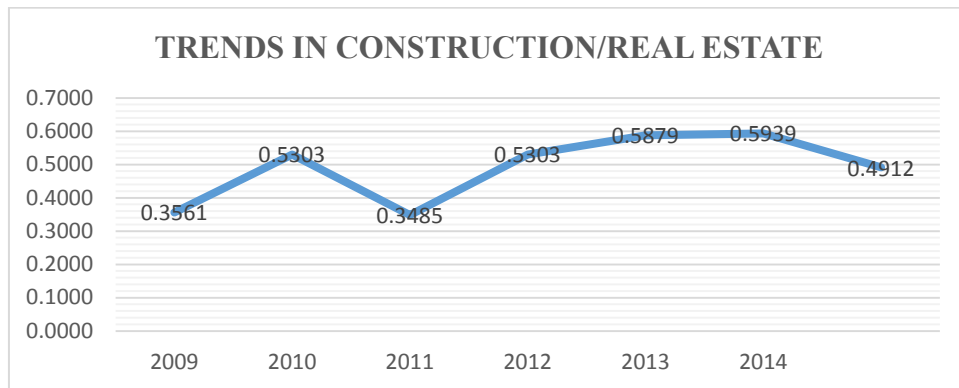


Figure 4.11  
*Trends in Construction/Real Estate*

#### 4.5.3 Healthcare Sector

In the healthcare sector, a U-shaped disclosure pattern was made (Figure 4.22). The curve started at 54.92% disclosure in 2009, slopes downwards to 46.97% in 2010 and further down to negotiate at 40.40% in 2011. It then moves upwards to 58.71% in 2012 and maintain a straight trend of 62.88% in each of 2013 and 2014.

On average disclosure was 54.46% in the sector.

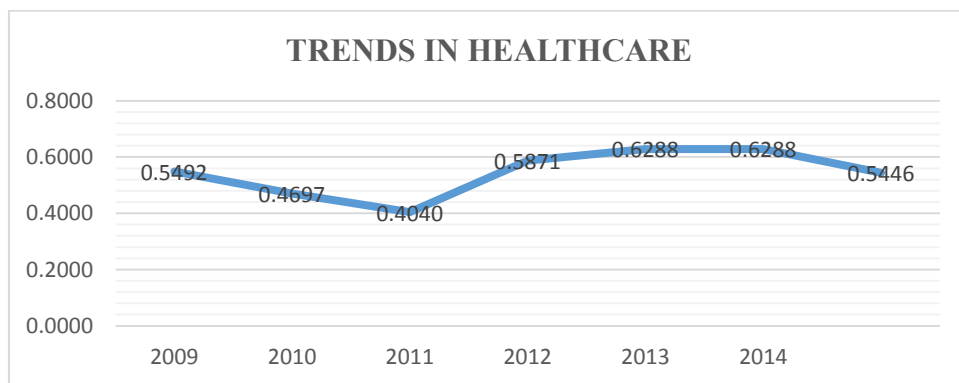


Figure 4.12  
*Trends in Healthcare*

#### 4.5.4 Industrial Goods Sector

The industrial goods sector has a slight fall in disclosure from 68.32% to 67.49% between 2009 and 2010 (Figure 4.23). This fall went deeper in 2011 to 51.72%. It then rose to maintain a steady flow in 2012 and 2013 of 71.67% only to fall slightly to 69.85% in 2014. This leads to an average disclosure rate of 66.79%.

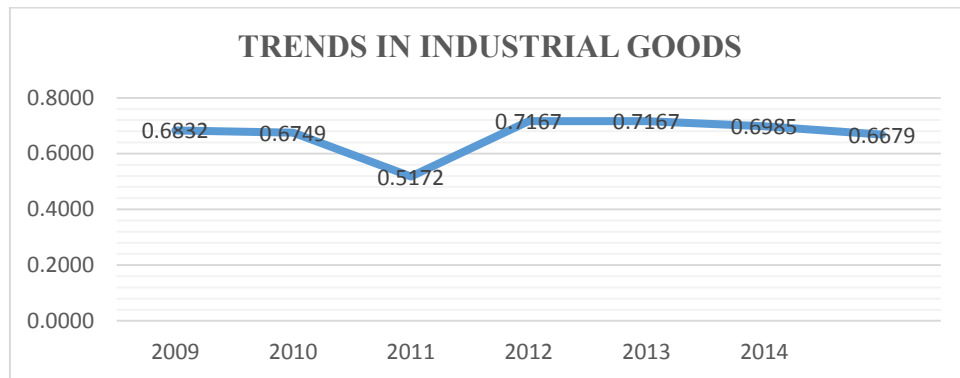


Figure 4.13  
*Trends in Industrial Goods*

#### 4.5.5 Natural Resources Sector

Assuming an bird-wing shape, the trend in the natural resources sector on sustainability information disclosure rose slightly (Figure 4.24), dips in 2012 only to rise again and maintain a steady flow in 2013 and 2014. Reports for 2009, 2010, 2011, 2012, 2013 and 2014 shows disclosures of 46.99%, 56.97%, 57.58%, 48.48%, 58.18% and 58.18% respectively. There was an average disclosure in the sector of 54.40%.



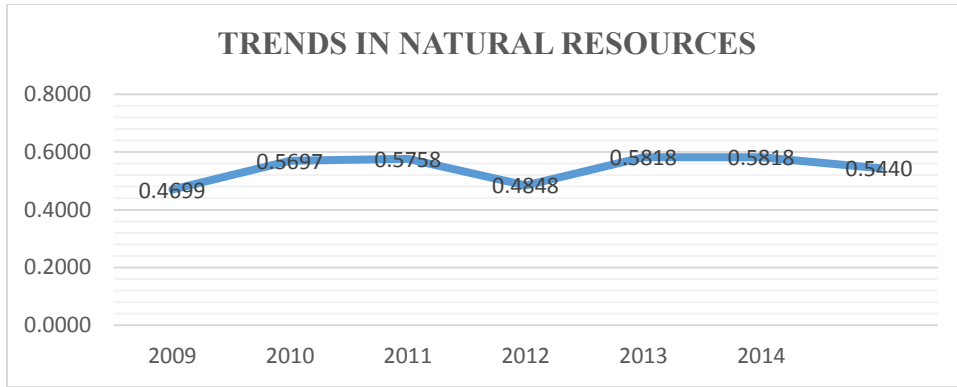


Figure 4.14  
*Trends in Natural Resources*

#### 4.5.6 Oil & Gas Sector

In the oil & gas sector (Figure 4.25), the disclosure shows an upward movement in trend. From 60.77% in 2009 disclosure increased to 64.14% in 2010, and 74.87% in 2011. This falls slightly in 2012 to 72.73% only to rise again in 2013 to 73.57% and then falls back to 71.55% in 2014. The averaged disclosure in this sector was put at 69.61%.

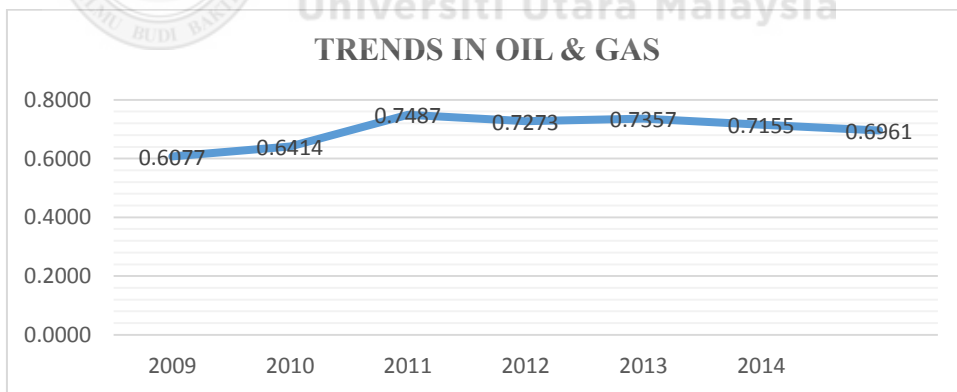


Figure 4.15  
*Trends in Oil & Gas*

A critical examination of the SADI in the entire environmentally sensitive sector, gives a range of 20.48% for the index (Figure 4.26). The highest score for this index was recorded by the oil & gas sector (69.61%) and the lowest by the

construction/real estate sector (49.12%) with agriculture (62.75%), industrial goods (66.79%), healthcare (54.46%) and natural resources (54.40%) industries being ranked at second, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> respectively. The average disclosure by firms in the environmentally sensitive sector based on SADI was recorded at 59.52%.

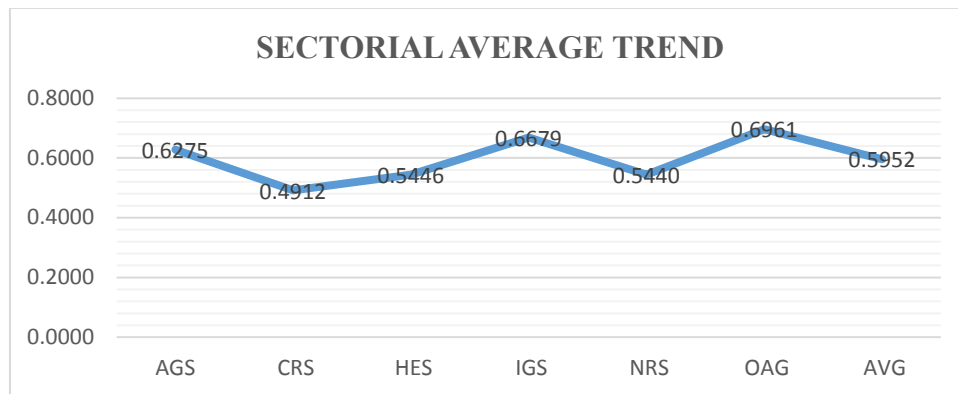


Figure 4.16  
*Sectorial Average Trend*

#### 4.5.7 Average Annual Trend Disclosure

The trend from average disclosure follows the footsteps of sectorial disclosure. It began with a rise, falls slightly and pick up again to maintain a steady increase. From 49.36% in 2009 it rose to 60.22% in 2010 only to fall to 53.09% in 2011 (Figure 5.27). By 2012, it has increased back to 62.77% and continues to increase to 66.05% in 2013, only to fall slightly to 65.64% in 2014. Nonetheless, the average trend was 59.52%.

Strictly speaking looking at the trend of disclosure objectively, it shows an undulating pattern of disclosure. From a very poor disclosure in 2009 to a higher disclosure in 2010 only to fall in 2011 before picking up again and increase in 2012 and 2013. There was however, a slight fall between 2013 and 2014. It is important to note that there is a higher level of disclosure between 2012 and 2014. Of greater significance is the deep fall in 2011. Except for the oil & gas sector, all other sectors

have deep falls between 2011 and 2012. Notwithstanding this fall, a steady rise was recorded from 2012 (Figure 4.27). This situation could not be unconnected with the federal government's adoption in 2012 of IFRS, which saw a dramatic change in financial reporting generally in Nigeria. In conclusion, even though a general disclosure trend seem to be recorded throughout the sectors the oil & gas sector had a higher annual average trend perhaps due to the dominance of foreign companies in the sector (multinational corporations and IOCs).



Figure 4.17  
*Annual Economy Trend*

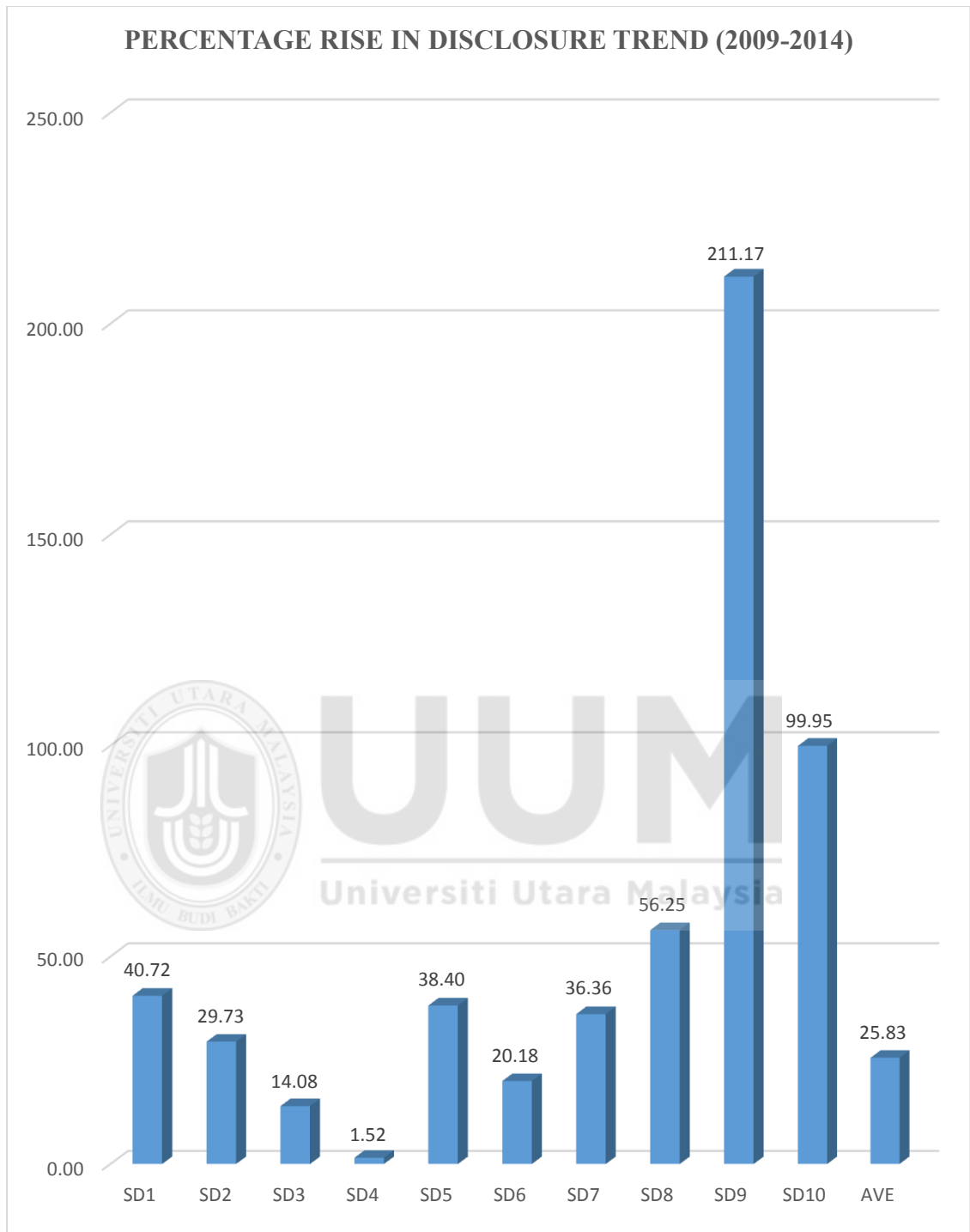
#### 4.6 Analysis of Annual Environmental Items Disclosure Trend Increase

The voluntary nature of disclosure in Nigeria leaves questions on whether or not disclosure on environmental matters made by some firms is on the rise. In this section, an examination of the average annual disclosure trend of each item is made to determine the rate of increase/decrease between 2009 and 2014. As already seen from the disclosure trend by sectors for all items, the trend shows an undulating pattern (rising and falling).

The result on Figure 4.28 shows that disclosure on strategy and analysis (SD1) increased by 40.72% within the period of observation (2009-2014). Similar trend was also discovered for organizational profile (SD2). In this case, however, a lower

increment of 29.73% was recorded. On the third item of disclosure which is governance (SD3), the result was a 14.08% increase in overall disclosure. Economic issues (SD4) recorded the lowest disclosure incremental rate of 1.52%. This could have resulted due to the fact that this item apart from 2009 was fully disclosed throughout most of the periods under observation. Sustainability issues (SD5) disclosed increased by 38.4% during the period. There were also increase for social issues (SD6) and labour practices & decent work (SD7) of 20.18% and 36.36% respectively. Also showing a very good incremental trend was disclosure on human rights issues (SD8). This item increased by 56.25% during the period under observation. Product responsibility (SD9) recorded the highest result of increase in trend with an increment of 211.17%. Ethical policies on the environment (SD10) had a trend of 99.95% disclosure increment during the period.

To conclude, result on Figure 4.29 seem to suggest that except for economic issues (SD4), all of the items of disclosure increased appreciably high. It should however, be noted that the increase is not a smooth, positive and consistent one, but interrupted over the years under consideration. The most important feature of the trend was that 2011 and 2013 saw a dive in trend only to rise the following years. On average however, there is an increase of 25.83% overall. There were also increases throughout the period with the exception of 2011, leading to an upward slopping curve (Figure 4.17).



*SD1- strategy & analysis, SD2 – organizational profile, SD3 – governance, SD4 – economic issues, SD5 – sustainability issues, SD6 – social issues, SD7 – labour practices & decent work, SD8 – human rights issues, SD9 – product responsibility, SD10 – ethical policies on products, AVE – average*

Figure 4.18

*Percentage Rise in Disclosure Trend (2009-2014)*

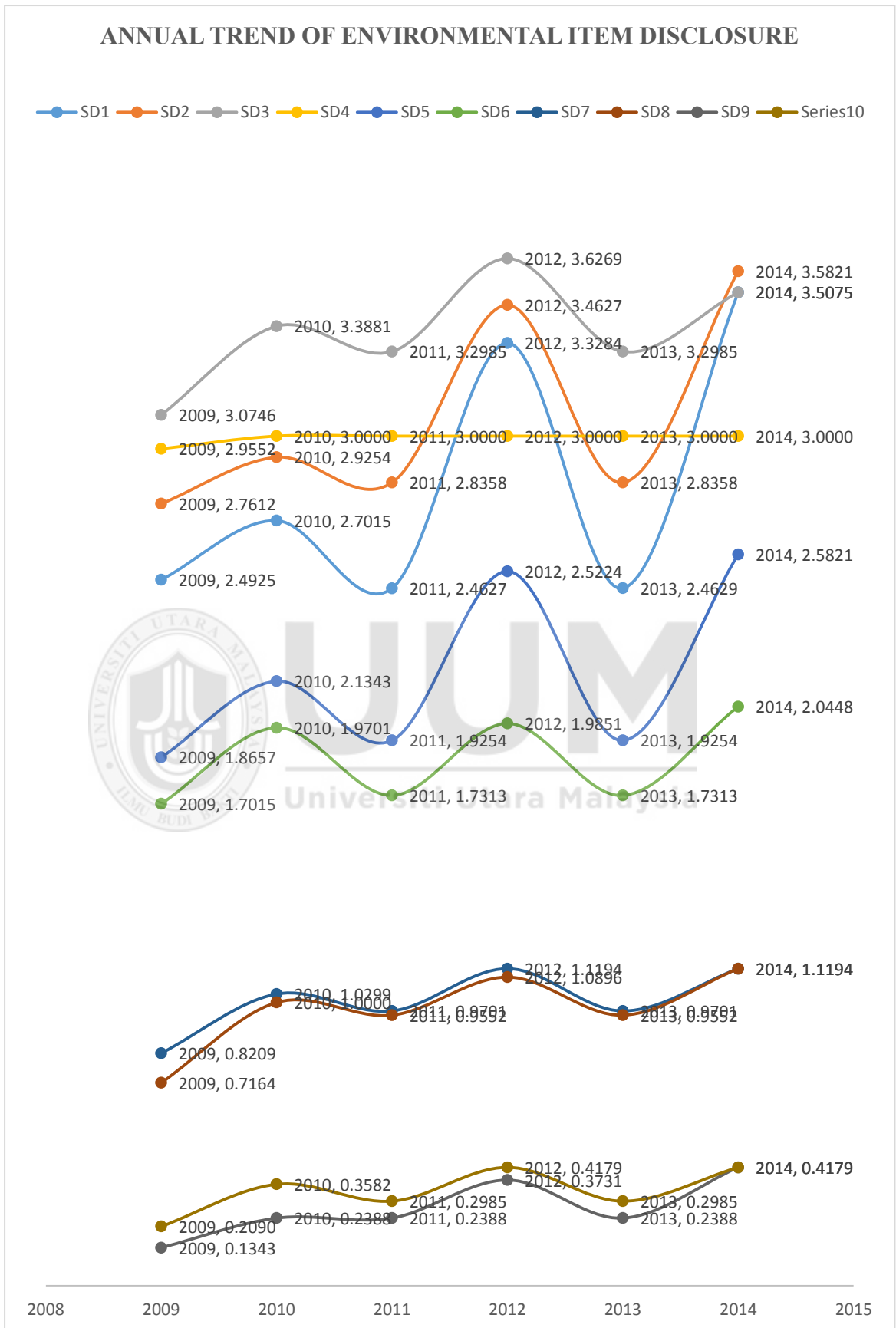


Figure 4.19  
Annual Trend of Environmental Item Disclosure

## **4.7 Tests on Disclosure Trends**

### **4.7.1 Jonckheere-Terpstra (J-T) Test**

In general, the Jonckheere-Terpstra (J-T) test is a non-parametric equivalent of analysis of variance, which tests a linear trend in the pattern of the observations across groups. J-T test is common and has been applied successfully in the medical sciences through the mean values to make comparison of trends on the efficiency and effectiveness between two variables over time (Damjanov, Kauffman, & Spencer-Green, 2009; Mayhara, Yamaguchi, Takenouchi, Kariya, Taguchi, & Shimizu, 2012; Payne & Dauterive, 2008). Interpretation of J-T test is from the p-value result. A significant result is an indication of an increasing trend.

One of the objective of this research is on the nature and trend of sustainability disclosure by environmentally sensitive companies in Nigeria. The result from the J-T test conducted shows that 22 of the 33 sub-items representing approximately 67% indicate an increasing trend over the years observed (Table 4.2). Those sub-items that were not significant and shows signs of non-increasing trends as indicated on Table 4.2 include strategy (SD1), name of firm, address of firm, and accounting year-end (SD2), mission and vision (SD3), flow of capital, economic impact on society, and impact on economy (SD4), organizational responsibility and employment (SD6), and training & education (SD7). The majority of these were significant at 1% level with only two sub-items namely: risks (SD1) and social policy (SD6), significant at 10% degree of significance. Table 4.2 further explains more on the increasing trend of sustainability disclosure through J-T test.

Table 4.2  
*Jonckheere-Terpstra Test on Sub-Items Disclosure*

CODE	Sub-item	p-value	Remarks (Level of sig.)
SD1	Relevance	0.0000	1%
	Strategy	0.4550	Not significant
	Impact	0.0060	5%
	Risks	0.0070	10%
	Opportunities	0.0000	1%
SD2	Name of Firm	1.0000	Not significant
	Address of Firm	1.0000	Not significant
	Accounting Year-end	1.0000	Not significant
	Re-statement	0.0000	1%
	Auditing & Assurance	0.0000	1%
SD3	Organizational Structure	0.0500	5%
	Mission & Vision	0.6740	Not significant
	Agreements	0.0030	5%
	Industrial membership	0.0080	5%
	List of Stakeholders	0.0060	5%
SD4	Flow of Capital	1.0000	Not significant
	Economic Impact on Society	0.3800	Not significant
	Impact on the Economy	0.3800	Not significant
SD5	Material Used	0.0080	1%
	Energy	0.0050	1%
	Effluents	0.0200	5%
	Biodiversity & Wastes	0.0060	1%
	Environmental Management Department	0.0350	5%
SD6	Social Policy	0.0680	10%
	Organizational Responsibility	0.1140	Not significant
	Employment	0.5340	Not significant
	Management's Relationship with the Community	0.0420	5%
SD7	Health & Safety	0.0040	1%
	Training & Education	0.1020	Not significant
SD8	Equal Rights	0.0330	5%
	Privileges	0.0020	1%
SD9	Environmental Impact of the Product	0.0000	1%
SD10	<b>Environmental Code of Conduct</b>	<b>0.0060</b>	<b>1%</b>

For the major items, observed (SD1-SD10) that makes up the dependent variable the J-T test results shows significant results for nine of the 10 items observed (Table 4.3).



Table 4.3  
*Jonckheere-Terpstra Test of Dependent Variable Items with Economic Issues (Pre and Post IFRS)*

Items	Levels in a Year	No. of Items Observed	Standard J-T t-statistics	Sig.
Strategy & Analysis (SD1)	6	389	5.3010	0.0000
Organization Profile (SD2)	6	389	4.4720	0.0000
Governance (SD3)	6	389	2.1050	0.0350
Economic Issues (SD4)	6	389	1.1530	0.2490
Environmental Issues (SD5)	6	389	3.7080	0.0000
Social Issues (SD6)	6	389	1.8210	0.0690
Labour Practices & Decent Work (SD7)	6	389	2.6290	0.0090
Human Rights Issues (SD8)	6	389	3.5710	0.0000
Product Responsibility (SD9)	6	389	4.6220	0.0000
Environmental Ethical Policies (SD10)	6	389	2.9670	0.0030
<b>Simple Average Disclosure Index (SADI)</b>	<b>6</b>	<b>389</b>	<b>4.0860</b>	<b>0.0000</b>

This shows that there were increasing trends during the period of observation (2009-2014) for strategy & analysis, organizational profile, governance, environmental issues, labour practices & decent work, human rights issues, product responsibility and ethical policies on environment. Together, seven of the nine significant results were at 1% level of significance. From Table 4.3 it is also seen that firms disclose annually at an increasing rate, more than 80% of items of the dependent variable. Only one of the 10 items (economic issues) does not show changes at an annual increasing rate. A look at governance and social issues shows that they are the only significant items that did not show significance level of 1%. They are significant at 5% and 10% levels of significance respectively.

Earlier validity test conducted on Table 3.10, the KMO result of economic issues shows a value of 8.60% indicating the invalidity of economic issues as a measure of environmental issues. In the light of this, the item was eliminated as a measure of sustainability information disclosure. The result Table 4.4 of the J-T test after dropping economic issues shows a more positive result with almost 89% of the items significant at 5% level of significance and below. This implies that except for

social issues, there is strong increasing trend for all the items of sustainability information disclosure over the periods under observation.

Table 4.4  
*Jonckheere-Terpstra Test of Dependent Variable without Economic Issues (Pre and Post IFRS)*

Items	Levels in a Year	No. of Items Observed	Standard J-T t-statistic	Sig.
Strategy & Analysis (SD1)	6	389	5.3010	0.0000
Organization Profile (SD2)	6	389	4.4720	0.0000
Governance (SD3)	6	389	2.1050	0.0350
Environmental Issues (SD5)	6	389	3.7080	0.0000
Social Issues (SD6)	6	389	1.8210	0.0690
Labour Practices & Decent Work (SD7)	6	389	2.6290	0.0090
Human Rights Issues (SD8)	6	389	3.5710	0.0000
Product Responsibility (SD9)	6	389	4.6220	0.0000
Environmental Ethical Policies (SD10)	6	389	2.9670	0.0030
<b>Simple Average Disclosure Index (SADI)</b>	<b>6</b>	<b>389</b>	<b>4.0860</b>	<b>0.0000</b>

#### 4.7.2 Independent Sample Test (Mean Grouping Statistics)

For comparison purposes, the period under investigation has earlier been divided into two, the period before the introduction of IFRS in Nigeria (pre-IFRS) and the period after the introduction of IFRS (post-IFRS). The pre-IFRS period covers 2009-2011, while the post-IFRS period is 2012-2014. For the purpose of analysis the pre-IFRS period has been classified as “period 1” while the post-IFRS period has been classified as “period 2” as shown on Table 4.5 below. From Table 4.5 the results shows that for the two periods, the post-IFRS period shows a higher mean disclosure values for all the items. This is an indication that even though there were increasing trends for all the items throughout the period of observation, the 2<sup>nd</sup> period (2012-2014) have a higher disclosure rate.

Table 4.5  
*Independent Sample Test (Mean Group Statistics) for Pre (1) & Post (2) IFRS*

CODE	Items	Period	Number of Firms	Mean
SD1	Strategy & Analysis	1	201	2.5500
		2	188	3.4700
SD2	Organization Profile	1	201	2.8400
		2	188	3.5700
SD3	Governance	1	201	3.2500
		2	188	3.5800
SD5	Environmental Issues	1	201	1.9800
		2	188	2.6000
SD6	Social Issues	1	201	1.8000
		2	188	2.0800
SD7	Labour Practices & Decent Work	1	201	0.9400
		2	188	1.1300
SD8	Human Rights Issues	1	201	0.8900
		2	188	1.1300
SD9	Product Responsibility	1	201	0.2000
		2	188	0.4100
SD10	Environmental Ethical Policies	1	201	0.2900
		2	188	0.4300
SADI	Simple Average Disclosure Index	1	201	0.4915
		2	188	0.6138

An evaluation of results on Table 4.6 shows that it is only strategy & analysis, organizational profile, product responsibility and environmental ethical policies that have increasing trend of significance. On the other hand, governance, environmental issues, social issues, labour practices & decent work, and human right issues did not record any significant increasing trend. This notwithstanding, the overall disclosure index on sustainability reporting (SADI) shows a significant increasing trend. The implication is that with the introduction of IFRS, sustainability reporting increases at a significant rate.

Table 4.6  
*Independent Sample Test (Pre & Post IFRS) – Significance*

Items	Levene's Tests for Equality of Variance	
	t-value	Significance
Strategy & Analysis (SD1)	4.5100	0.0340
Organizational Profile (SD2)	4.2530	0.0400
Governance (SD3)	0.7960	0.3730
Environmental Issues (SD5)	1.5310	0.2170
Social Issues(SD6)	0.3030	0.5830
Labour Practices & Decent Work (SD7)	0.9870	0.3210
Human Rights Issues (SD8)	1.7860	0.1820
Product Responsibility (SD9)	76.139	0.0000
Environmental Ethical Policies (SD10)	29.0180	0.0000
<b>Simple Average Disclosure Index (SADI)</b>	<b>4.3700</b>	<b>0.0370</b>

#### 4.8 The Nature of Foreign Ownership Concentration and Sustainability Disclosure

The research examines one of the objectives of the research as it affects compliance with sustainability reporting by environmentally sensitive firms in the Nigerian economy. The 67 firms used as sample for this research were classified into two based on foreign ownership concentration - local foreign ownership concentration and foreign ownership concentration. The 389 observations of this research shows that 228 firms are of local ownership and 161 firms has foreign ownerships. The analysed result of sustainability reporting disclosure rate in Figure 4.30 indicates that foreign owned firms disclosure is slightly lower on sustainability reporting by environmentally sensitive firms in Nigeria. While the disclosure rate for local firms is 60.01%, that of foreign is 59.88%. This gives an average disclosure rate of 55.06%.

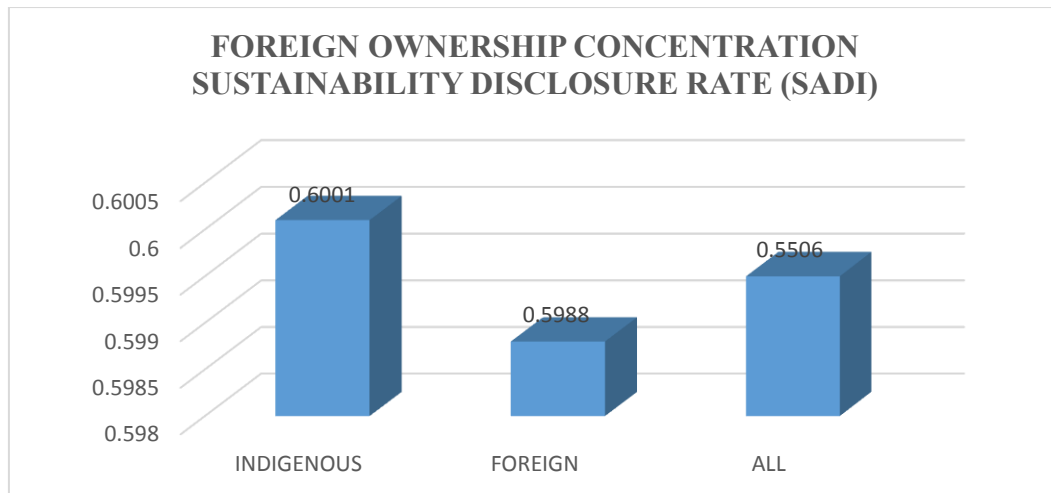


Figure 4.20  
*Foreign Ownership Concentration and Sustainability Disclosure Rate of SADI*

This difference in disclosure rate between the two is 0.13%. This outcome implies that foreign owned firms are not far more important in terms of sustainability disclosure in the environmentally sensitive sector of Nigeria. Moreover, though sustainability reporting is not mandatory in Nigeria (Enahoro, 2009) this result have shown that local firms show more interest in disclosure of sustainability information than their foreign counterparts albeit by a very tiny margin. Thus implying that most of sustainability disclosure in Nigeria is embarked upon by local companies. This result seem to support the outcome of Hossain *et al.* (2006) whose study in Bangladesh showed lower rate of disclosure by foreign firms compared to local firms operating in the country. Nonetheless, this result contradicts the findings of works by Anderson (2003), Ballou *et al.*, (2006), Basalamah and Jermias (2005), Brammer and Pavelin (2016), Eng and Mak (2003) and Moneva and Llena (2000). The results of all these studies showed that foreign firms have higher rate of disclosure on sustainability reporting.

## 4.9 Analysis of Sustainability Disclosure

### 4.9.1 Descriptive Statistics

Earlier on Table 4.3, analysis of disclosure trend seems to show that economic issues has no significant increasing trend. It was therefore eliminated from the 10 items used to determine the SADI of this research. Its elimination resulted in a KMO statistics (validity) of 0.881 as against 0.883 and a Cronbach's Alpha (reliability) of 0.905 compared to 0.917 (Table 4.7). The validity and reliability of the measurement instrument was therefore not greatly affected by the removal of economic issues. With this result on Table 4.7, the descriptive statistics result for the dependent variable items is given on Table 4.8.

Table 4.7  
*New Validity and Reliability Statistics for SADI*

No. of Items	KMO Value	Cronbach's Alpha	Degree of Freedom	Significance
9	0.8810	0.9050	36	0.0000

Table 4.8  
*Descriptive Statistics of Dependent Variable Items*

Items	Mean	Std. Dev.	Min.	Max.
Strategy & Analysis (SD1)	2.9974	1.5885	0	5
Organizational Profile (SD2)	3.1928	1.5962	0	5
Governance (SD3)	3.4113	1.6499	0	5
Environmental Issues (SD5)	2.2776	1.5697	0	5
Social Issues(SD6)	1.9357	1.2957	0	4
Labour Practices & Decent Work (SD7)	1.0334	0.7225	0	2
Human Rights Issues (SD8)	1.0077	0.7233	0	2
Product Responsibility (SD9)	0.3059	0.4614	0	1
Environmental Ethical Policies (SD10)	0.3573	0.4798	0	1

The descriptive analysis on Table 4.8 shows that strategy and analysis (SD1) has an average disclosure of 2.9974. The deviation from the mean is at an acceptable level of 1.5885. Organizational profile (SD2) records a mean score of 3.1928 with a standard deviation of 1.5962 which does not vary much from the mean. Governance (SD3) records an average disclosure for all the observed firms of 3.4113 with a standard deviation of 1.6499. Environmental issues (SD5) recorded a mean

disclosure of 2.2776. The standard deviation is 1.5697. The four items of SD1, SD2, SD3 and SD5 have minimum and maximum disclosure values of 0 and 5 respectively.

Social issues (SD6) has a mean disclosure value of 1.9357 with minimum and maximum disclosures of 0 and 4 respectively. The standard deviation is 1.2957. For labour practices and decent work (SD7), the average disclosure rate is 1.0334 with a standard deviation of 0.7225. Human rights issues (SD8), has a mean disclosure of 1.0077 with a standard deviation of 0.7233. Both labour practices & decent work and human rights issues records minimum and maximum disclosure scores of 0 and 2 respectively. The last two items of the dependent variable in the form of product responsibility (SD9) and environmental ethical policies (SD10) have minimum and maximum scores of 0 and 1 respectively. Their records showed a mean disclosure of 0.3059 and 0.3573 for product responsibility and ethical policies respectively. The two items produced standard deviation results of 0.4614 and 0.4798 respectively. From Table 4.8 above, none of the standard deviation values for the items exceeds 1.6500. This is an indication of the normality nature of the distribution as there are no wide variations from the mean for each of the environmental items.

Furthermore, Table 4.9 shows the descriptive statistical records for both sustainability reporting (SADI) and its 11 determinants in the form of NSE, DPR, NESREA, firm size, financial leverage, market-to-book value ratio, board independence, duality, environmental experts, board size, foreign ownership concentration and industrial type.

Table 4.9  
*Descriptive Statistics of Dependent and Independent Variables*

Variables	Mean	Std. Dev.	Min.	Max.
Simple Average Disclosure Index (SADI)	0.5506	0.2761	0.0000	1.0000
NSE	3.0464	0.1027	2.9088	3.2724
DPR/NESREA	2.4711	0.4785	1.9159	3.3320
Firm Size (Log10)	6.6581	0.8075	4.7997	9.4980
Financial Leverage	4.0678	10.4037	-17.4103	91.4788
Market-to-Book Value	7.1919	11.9956	0.0000	81.2952
Board Independence	2.0077	1.3873	0.2857	10.0000
Duality	0.7172	0.4509	0.0000	1.0000
Environmental Experts	0.1131	0.3171	0.0000	1.0000
Board Size	9.2082	2.4663	2.0000	18.0000
Foreign ownership concentration	0.4139	0.4932	0.0000	1.0000
Industrial Type	4.1645	1.4779	1.0000	6.0000

The simple average disclosure index (SADI) which is the dependent variable, produced minimum and maximum scores of 0 and 1. On average 0.5506 disclosure was recorded against a standard deviation of 0.2760. The research used MVI to measure environmental policy administrators (NSE, DPR and NESREA) which, tests for the role of environmental administrators in Nigeria in aiding and ensuring compliance with environmental standards and guidelines. NSE have a mean score of 3.0464 from a given range of zero and five. The deviation from the mean was 0.1027 and 2.9088 represented the least score while the highest score recorded was 3.2724. The situation is different for DPR/NESREA whose mean score index recorded was 2.4712 with a deviation from the mean of 0.4785. This clearly shows that the deviation from the mean was not abnormal. Minimum and maximum scores were 1.9159 and 3.3320 respectively.

Moreover, just as the work of Andrikopoulos and Krikliani (2013) on corporate performance showed, different results on mean disclosure and standard deviation were reported. Firm size have a mean record of 6.6581. The standard deviation, which is within acceptable range, records 0.8075. Minimum logarithm records 4.7997 while maximum log was 9.4980. Another of the independent variable that



also looks at corporate performance was financial leverage. The mean ratio obtained for this variable was 4.0678 with a standard deviation of 10.4037 representing higher rate of deviation from the mean. Minimum ratio of -17.4103 and maximum ratio of 91.4786 is also recorded for this variable. This mean is an indication that environmentally sensitive firms are about 4 times heavily dependent on debt financing. Market-to-book value ratio has a mean of 7.1919. The implication of this result is that the overall value of firms under observation appreciated in value. The standard deviation of this variable which shows evidence of variation in data distribution is 11.9956. Minimum and maximum scores were 0 and 81.2952.

Furthermore, the descriptive results shows independent variables which deals with Board characteristics. The first of them Board independence, measures the proportion of non-executive board members to executive members. The average shows that non-executive members of the board outnumbered their executive counterparts by 2.0077 times. This implies that on average, non-executive members are over twice the executive members in the BOD. The standard deviation value stood at 1.3873. The minimum result was 0.2857 and the maximum 10. The duality gives a mean score of 0.7172. The implication is that the majority of CEOs roles (about 72%) are separated from Chairpersons role. With a standard deviation of 0.4509 and a minimum and maximum value of 0 and 1 scores reported. It means distribution in the observation is normal. Overall, scores for environmental experts in the years under observation puts average environmental experts in the firms at 11.31%. This was registered at a standard deviation of 0.3171 while minimum and maximum records were 0 and 1 dummy values. Board size based on the number of personnel, gives a result of average membership of 9.2082. The standard deviation shows a result of 2.4663. With a minimum board membership result of 2 and a

maximum of 18, the average board membership meets the criterion stipulated in the corporate code of governance (2011, SEC Code) of not less than 5 board members.

In addition, the descriptive statistics results shows foreign ownership concentration which attempts to determine sustainability disclosure based on foreign or local ownership. Separating foreign ownership concentration into foreign and local leads to high collinearity between them. To avoid this, a single variable called foreign ownership concentration was adopted. The overall average result measured in percentage was 41.39% foreign ownership concentration. Standard deviation of the disclosure was 0.4932 with minimum and maximum scores of 0 and 1. Deviation from the mean showed a lower rate of variation in the distribution.

The control variable is denoted by industrial type (IT). It measures the uniqueness of each sector in terms of environmental impact. Firms of the 67 sample that make up this research were coded 1 to 6 based on the industry they belong. The mean shows a score of 4.1645 which produces a standard deviation of 1.4779. This is an indication of a good distribution in the dataset. The minimum and maximum values of the distribution were one and six respectively.

## 4.9.2 Interpretation of the Standard Deviation

Table 4.10  
*Interpretation of the Standard Deviation*

Variable	Mean	Std. Dev.	Min.	Max.	L. L.	U. L.
Strategy & Analysis (SD1)	2.9974	1.5885	0	5	-1.7681	7.7629
Organizational Profile (SD2)	3.1928	1.5962	0	5	-1.5958	7.9814
Governance (SD3)	3.4113	1.6499	0	5	-1.5384	8.361
Environmental Issues (SD5)	2.2776	1.5697	0	5	-2.4315	6.9867
Social Issues (SD6)	1.9357	1.2957	0	4	-1.9514	5.8228
Labour Practice (SD7)	1.0334	0.7225	0	2	-1.1341	3.2009
Human Rights Issues (SD8)	1.0077	0.7233	0	2	-1.1622	3.1776
Product Responsibility (SD9)	0.3059	0.4614	0	1	-1.0783	1.6901
Environmental Ethical Policies (SD10)	0.3573	0.4798	0	1	-1.0821	1.7967
<b>Sustainability reporting (SADI)</b>	<b>0.5506</b>	<b>0.2761</b>	<b>0</b>	<b>1</b>	<b>-0.2777</b>	<b>1.3789</b>
NSE	3.0464	0.1027	2.9088	3.2724	2.7383	3.3545
DPR/NESREA	2.4712	0.4785	1.9159	3.332	1.0357	3.9067
Firm Size	6.6581	0.8075	4.7997	9.4982	4.2356	9.0806
Financial Leverage	4.0678	10.4037	-17.4103	91.4788	-27.1433	35.2789
Market-to-Book Value	7.1919	11.9956	0	81.2952	-28.7949	43.1787
Board independence	2.0077	1.3873	0.2857	10	-2.1542	6.1696
Duality	0.7172	0.4509	0	1	-0.6355	2.0699
Environmental Experts	0.1131	0.3171	0	1	-0.8382	1.0644
Board Size	9.2082	2.4663	2	18	1.8093	16.6071
Foreign ownership concentration	0.4139	0.4932	0	1	-1.0657	1.8935
Industrial Type	4.1645	1.4779	1	6	-0.2692	8.5982

Standard deviation is the spread of the data from the mean. This research applies the “mean plus/minus three-times standard deviation” rule which states that all data should be within the mean plus or minus three times the standard deviation’s upper and lower limits (St. John, 2009). In other words, none of the data in the observation should be more than or less than three times the standard deviation plus or minus the mean. Data in all the observations must fall within these limits. Statistically, these limits are expressed as:

$$\begin{aligned}\text{Upper limit} &= \text{Mean} + (3 \times \text{standard deviation}) \\ \text{Lower limit} &= \text{Mean} - (3 \times \text{standard deviation})\end{aligned}$$

From Table 4.10 above, the lower and upper limits of the standard deviations were computed for each of the 21 observations on the table. Items like strategy & analysis, organizational profile, governance, environmental issues, social issues, labour practice, human rights, product responsibility and environmental ethical policies contains data that are within the lower and upper limits. While the lowest value for all these items is 0, the highest values for strategy & analysis, organizational profile, governance and environmental issues is 5. Furthermore, the highest values for social issues is 4, labour and human rights is 2 and for product responsibility, environmental ethical policies and environmental issues the highest value is 1 (Table 4.10). Based on these results, it is clear that the scores recorded for these items of the sustainability-reporting index did not exceed both the lower and upper limits. In this context, it is shown that the distribution of data for the items that measure environmental issues are evenly distributed. The level of environmental issues disclosure (SADI) is therefore, 55.06% (Table 4.10).

Scores for the independent and dependent variables however, showed mixed results. From the records on Table 4.10 NSE has lower and upper limit scores of 2.7383 and 3.3543 respectively. Both the minimum and maximum scores of 2.9088 and 3.2724 falls within these limits, which gives an acceptable result. DPR/NESREA have minimum of 1.9159 and a maximum score of 3.3320. A critical observation of the upper and lower limits results showed that the scores fall within the limit range, which is between 1.0357 and 3.9067. Thus, it can deduced that variation from the mean for NSE and DPR/NESREA were not adverse.

The corporate financial performance variable of firm size shows a lower limit of 4.2356 and an upper limit of 9.0806. For this variable, it is seen that the variable falls within the lower limit but outside the upper limit as the minimum and maximum scores were 4.7997 and 9.4982 respectively. This seems to indicate that the variation of the data are not normally distributed. The lower limit result for financial leverage is -27.1433 and the upper limit is 35.2789. Like firm size, the minimum score of -17.4103 is within the limit but the maximum score of 91.4788 exceeds the limit. Thus, indicating abnormality in the data distribution for this variable. The final corporate performance variable of market-to-book value gives lower limit of -28.7949 and an upper limit of 43.1787. While the lower limit was attained the upper limit could not be attained. This is an indication of abnormal distribution in the data.

Board characteristics consists of four variables, which includes Board independence, duality, environmental expert and board size. Board independence gives limits of -2.1542 and 6.1696 for the lower and upper limits respectively. Again, the minimum score of 0.2857 is within the lower limit but the maximum score of 10 exceeds the upper limit. The same could not be said of duality and environmental expert. Both minimum and maximum scores for these variables lie within the lower and upper standard deviation range. Both variables have minimum and maximum scores of 0 and 1 respectively. However, duality have a lower limit score of -0.6355 and an upper limit score of 2.0699. Environmental experts on the other hand has a lower limit of -0.8382 and an upper limit of 1.0644. It shows that distribution in the data of these variables is well distributed. The minimum and maximum of board size of 2 and 18 members did not fall within its standard deviation upper limit of 16.6071, but is well within the lower limit of 1.8093. In this regard, it can be rightly inferred

that half of the variables under this criterion were normally distributed while the other half were not.

The lower and upper limits for foreign ownership concentration ranges from -1.0657 to 1.8935. The minimum and maximum scores of 0 and 1 falls right within these limits which indicates that variation from the mean of foreign ownership concentration was not adverse. Finally, the control variable of industrial type gives lower and upper limits of -0.2692 and 8.5982 respectively. The minimum and maximum scores recorded in the distribution of 1 and 6 respectively falls within these limits meaning that the distribution is not plagued by abnormality.

To sum up the standard deviation interpretation it can be observed that the dependent variable items are evenly distributed in the dataset. The same can be said for NSE, DPR/NESREA, duality, environmental experts, foreign ownership concentration and industrial type. With regard to corporate performance however, all the variables seem to indicate abnormal distribution in the dataset. This is also true for variables of variables like Board independence and board size. It is however, important to state at this juncture that descriptive statistics have limitations in its explanation of the behaviour of data, as it did not provide sufficient and satisfactory explanation concerning variables direction (type), relationships, magnitude, and statistical significance of results. In this case, the application of correlation matrix becomes inevitable.

#### **4.9.3 Correlation Coefficients**

The values of the correlation coefficients ( $r$ ) indicate the existence and strength of the relationship among variables (Al-Matari, 2013). This relationship is

estimated by values of between 0 and 1. Hair *et al.*, (2010) suggested that a correlation coefficient of zero indicate no relationship and a correlation coefficient of  $\pm 1$  demonstrates the existence of a perfect relationship. The interpretation of correlation between 0 and  $\pm 1$  could be classified into three: weak, medium and strong (Al-Matari, 2013; Alreyami, 2012; Lakkanawanit, 2013; Pantamee, 2014; Salim, 2011). A weak relationship has correlation coefficient values of between  $\pm 0.1$  and  $\pm 0.29$ . When the correlation value falls between  $\pm 0.30$  and  $\pm 0.49$  a medium or moderate relationship is said to exist, and for values of  $\pm 0.50$  and above denotes stronger relationships.



Table 4.11

*Correlation Matrix*

VARIABLES	SADI	FS	FL	MBV	BC	CD	EE
SADI	1.0000						
FIRM SIZE	0.2120*	1.0000					
FIN. LEV.	0.1414*	0.3216*	1.0000				
MBV	0.0864	0.1279*	0.2731*	1.0000			
BOARD COMP.	-0.1736*	0.0975	0.0587	-0.0950	1.0000		
DUALITY	-0.0434	0.0374	0.0789	-0.0198	-0.1041*	1.0000	
ENV. EXPERT	0.2131*	0.1811*	0.0979	0.1805*	0.0113	-0.0101	1.0000
BOARD SIZE	0.1376*	0.1797*	0.0638	0.1393*	0.1499*	0.0902	0.2631*
NSE	0.1510*	-0.0316	0.0297	-0.0101	-0.0600	-0.0326	0.2041*
DPR/NESREA	-0.1121*	-0.1519*	-0.1470*	-0.1608*	-0.0731	-0.0963	-0.0712
OWNERS. CON.	0.0501	-0.0426	-0.0208	0.1264*	-0.0178	-0.0055	0.1448*
INDUS. TYPE	0.2335*	0.2326*	0.1764*	0.1440*	-0.0250	0.0081	0.2131*
VARIABLES	BS	NSE	DPR/NESREA	CO	IT		
BOARD SIZE	1.0000						
NSE	-0.0024	1.0000					
DPR/NESREA	0.0746	0.1640*	1.0000				
OWNERS. CON.	0.0328	0.0889	-0.0611	1.0000			
INDUS. TYPE	-0.1240*	0.2209*	-0.5754*	-0.0123	1.0000		

**Legend:** \*  $p < 0.01$  (significant at 5%)

*SADI* – simple average index, *FS* – firm size, *FL* – financial leverage, *MBV* – market-to-book value, *BC* - Board characteristics, *CD* – Duality, *EE* – environmental expert, *BS* - board size, *NSE* – Nigerian stock exchange, *DPR/NESREA* – department of petroleum resources/national environmental standards and regulations enforcement agency, *CO* – foreign ownership concentration *IT* – industrial type



Table 4.11 shows the summary of the correlation matrix of our dependent and independent variables. The result showed that three of the independent variables (Board independence, duality and DPR/NESREA) varied inversely with sustainability disclosure indicating that the higher the Board independence, duality and DPR/NESREA monitoring, the lower the sustainability reporting; vice versa. All other variables varies directly with sustainability disclosure, meaning that the higher the values of these variables the more the sustainability disclosure (Hussein, 2012). Thus the higher the firm size, financial leverage, market-to-book value ratio, environmental experts, board size, monitoring by NSE and industrial type; the higher the disclosure on sustainability issues vice versa.

Further examination of the correlation index shows that there exists a relationship between all the variables in the distribution especially between the dependent variable and all the independent variables. This is shown by the fact that there is not a single correlation matrix value of 0 in the correlation matrix on the Table 4.11. Moreover, there are no existence of a perfect relationship among the variables as none of the correlation matrix variables index is  $\pm 1$ . The strength of the relationship between the dependent variable and the independent variables could be classified as small or weak as none but only two of the correlation indices exceeds  $\pm 0.29$  (Al-Matari, 2013; Lakkanawanit, 2013).

In terms of strength, the relationship between DPR/NESREA and industrial type (-0.5754) gives the strongest relationship in the observation. This denotes a very strong relationship, while the lowest index is board size/NSE (-0.0024) gives the lowest correlation matrix value. The correlation coefficient range between the two extreme values therefore, is 0.5730. It is also very important to note that all but three (market-to-book value, duality and foreign ownership concentration) of the

relationships between the dependent variable and the independent variables are significant. It is also of significance to note that none of the correlation index exceeds 0.80, a result that is similar to Al-Matari's (2013). In addition to this, results on Table 4.11 shows that all the correlation coefficients between the dependent variable and independent variables had weak relationship.

The correlation matrix could also be used to diagnose multicollinearity effects. Lakkahnawanit (2013) used the rule of thumb on multicollinearity, which states: "the individual correlation coefficient must be lower than 0.90 or several coefficient in the correlation matrix must be less than 0.80". As shown in the correlation result (Table 4.11), all the absolute values of correlation coefficient are below 0.80. The above analysis is an indication of lack of multicollinearity problem, because none of the relationships between the independent variables shows a statistical value greater than 80% (Lakkahnawanit, 2013; Pantamee, 2014). Of greater concern however, is that even though correlation matrix analyses the strength and direction of relationships between variables, together with their significance, collinearity and multicollinearity; questions are raised over lapses in the lack of estimation of the magnitude of the relationships and the measure of heteroskedasticity and normality. It is therefore, necessary to embark on further analytical technique that takes care of these weaknesses. In this respect regression, analysis was performed on the data.

#### **4.9.4 Regression Analysis**

Torres-Reyna (2007) sees panel data as a dataset in which the performance of entities (states, countries, individuals, firms, etc.) are observed over a given period. Panel data evaluation is a multi-dimensional data frequencies composed of estimates

over multiple periods. Panel data analysis is used for this research on the basis that the data distribution of this research combined reports for 67 firms spanning a period of 6 years (2009-2014). Moreover, Panel data analysis has the ability to combine a set of data for several firms over different periods and reduces collinearity among the independent variables. Analysis through panel data also increases the degree of freedom, thus improving the efficiency of statistical estimation (Pantamee, 2014). Furthermore, panel estimates equally accounts for heterogeneity of variables and is suitable for evaluating dynamic changes in firms, industries or sectors (Torres-Reyna, 2007). In this research, attention on estimates is focused on three techniques of panel data analysis so as to arrive at the best option for the data analysis. The techniques include pooled OLS model, fixed effect model and random effect model. The most appropriate of these techniques is applied in order to produce answers to the most significant objective of this research that centred on the relationships between sustainability reporting and its determinant factors.

Pooled OLS model is built on the primary knowledge that individual relationship have similar parameters. All the firms to be observed are pulled in one dataset hence there exists a standard set of parameters. Fixed effect model on the other hand shows the difference in intercepts for different entities with constant variation across companies and time. Random effect model do not have constant variation across entities and it is uncorrelated within the independent variables in the model. For the purpose of selecting the best analytical model, two tests would be conducted in order to choose the most fitting model between pooled OLS and random effect, and between fixed effect and random effect models. The Breusch and Pagan Lagrangian multiplier test (LM test) would be conducted first to select the best model between random effect and pooled OLS. This would then be followed by the

hausman test to determine the most suitable model for this research between fixed effect and random effect models. The best of the three options would then be selected to conduct the regression analysis for this research work.

#### **4.9.5 Random Effect Model and Pooled OLS Test**

The result of the LM test presented below gives a probability value of 0.0000 showing a significant level at 1%. This leads to the rejection of the null hypothesis stated below:

$H_0$  Difference in coefficient is not systematic in random effect

##### **Result of the LM Test**

Breusch and Pagan Lagrangian multiplier test for random effects

$$\text{chibar2}(01) = 77.06$$

$$\text{Prob} > \text{chibar2} = 0.0000$$

In this regard, pooled OLS is not the most efficient and appropriate since there is no entity effect in the model, instead random proves to be more efficient and appropriate between the two (Torres-Reyna, 2007). The random effect gives a magnitude of 15.71% (Appendix K – random effects regression) between sustainability information disclosure and firm size, financial leverage, market-to-book value, Board independence, duality, environmental experts, board size, NSE, DPR/NESREA, foreign ownership concentration and industrial type.

#### **4.9.6 Fixed Effect and Random Effect Tests**

The random effect model has proved to be a better efficient model than the pooled OLS from the LM test results above. An analysis of fixed effect and random effect through the hausman test shows an insignificant result of 0.2939.

### Result of the Hausman test

Test:  $H_0$ : difference in coefficients not systematic

$$\text{Prob}>\chi^2 = 0.2939$$

In the test for the null hypothesis:

$H_0$  Difference in coefficient not systematic in fixed effect model.

This result is not significant (0.2939) which is an indication that the null hypothesis is agreed with. The insignificant value of the result means random effect model is the most appropriate (Torres-Reyna, 2007). The implication is that the random effect model is more efficient and appropriate than the fixed effect model.

In the two tests carried out, it is discovered that random effect is preferred to both pooled OLS and fixed effect models. The conclusion is that random effect is the most efficient and appropriate model for the analysis of this data, as it is better than both the pooled OLS and fixed effect models. Therefore, the unique errors in the random effect model are not correlated with the regression.

Table 4.12

*Tabulation of Random, Pooled OLS and Fixed Coefficient Statistics*

<b>Independent Variables Ranking</b>	<b>Random 1<sup>st</sup></b>	<b>OLS 2<sup>nd</sup></b>	<b>Fixed 3<sup>rd</sup></b>
Firm Size	0.040155	0.048785**	0.028746
Financial Leverage	0.001610	0.002004	0.000804
Market-to-Book Value	-0.002680	-0.001321	-0.005159**
Board Independence	-0.037643***	-0.043304***	-0.033528**
Duality	-0.089821**	-0.056009	-0.098079**
Environmental Expert	0.053384	0.085788	0.007845
Board Size	0.010916	0.016865**	0.002295
NSE	0.223424	0.244434	0.249321
DPR/NESREA	-0.036492	-0.025992	-0.040522
Foreign ownership concentration	0.024985	0.016521	Omitted
Industrial Type	0.002391	0.002108*	Omitted
<b>Constant</b>	<b>-0.355873</b>	<b>-0.570814</b>	<b>-0.150677</b>

*Legend:* \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Table 4.12 shows the coefficients of the three models tested (random, pooled OLS and fixed) and random effect model emerged the best. The relationships that

emerged from the random effect model estimation shows both direct and indirect relationships. Variables like firm size, financial leverage, environmental experts, board size, NSE, foreign ownership concentration and industrial type have positive relationship with sustainability disclosure. This implies that positive or negative changes in these variables is accompanied by positive or negative changes in sustainability disclosure. On the other hand, the relationship between sustainability disclosure and market-to-book value (MBV) ratio, Board independence, duality, and DPR/NESREA are inverse. In other words, for every positive change in these variables there would be a corresponding negative change in sustainability disclosure. The poorer the performance of these variables the better the sustainability disclosure. It could therefore, be seen that while seven of the 11 independent variables tend to influence sustainability disclosure positively, the remaining four independent variables tend to do the opposite. It should also be noted that only two of these results (MBV ratio and Board independence) have significant negative impact at 5% level of significance.

Under the three models (fixed, random and OLS) Board independence is the only variable that is highly significant at 1% level of significance. MBV ratio, Board independence and duality are significant at 5% degree of significance under fixed effect model. The random model shows that Board independence and duality are significant at 5%. The pooled OLS have the best result in terms of total significant variables with firm size (1%), Board independence (0.1%), board size (5%) and industrial type (1%).

#### 4.10 Further Normality Diagnostic Tests

To further ensure the normality, validity and reliability of these results six diagnostic tests were conducted. These tests comprised mainly of collinearity and multicollinearity tests (variance inflation factor - VIF), autocorrelation test (Wooldridge test), goodness of model test, model specification test (Linktest), omitted variable test (Ramsey Reset test), and heteroskedasticity test (Breusch-Pagan/Cook-Weisberg test, IM-test or Modified Wald test for group-wise test).

##### 4.10.1 Multicollinearity Test

The inter-correlation of the independent variables is multicollinearity (Alreyami, 2012). It is according to Lakkahnawanit (2013), a situation of more than two predictors strongly correlated to the extent of eroding their independence. Such cases can distort the values of estimated regression and ultimately affects interpretation and accurate predictability of the dependent variable (Alreyami, 2012; Lakkahnawanit, 2013).

Hair *et al.*, (2010) and Alreyami (2012) posit that VIF values of less than 10 indicates little or no multicollinearity. With a mean VIF of 1.32 and with all of the predictors showing a result of less than 10 on Table 4.13, it means there are no evidence of multicollinearity among the predictor variables of this research. This implies that our estimated regression was free from distortion, misinterpretation and prediction errors. In other words, proceeding to the data analysis stage will make the constructs validity achievable by the regression model.

Table 4.13

*VIF on Foreign Ownership Concentration*

<b>Independent Variables</b>	<b>VIF</b>	<b>1/VIF</b>
Industrial Type	2.03	0.4918
DPR/NESREA	1.87	0.5361
NSE	1.28	0.7829
Environmental Expert	1.22	0.8214
Firms Size	1.22	0.8217
Financial Leverage	1.22	0.8218
Market-to-Book Value	1.21	0.8241
Board Size	1.21	0.8281
Board Independence	1.10	0.9087
Foreign Ownership Concentration	1.06	0.9423
Duality	1.06	0.9450
<b>Mean VIF</b>		<b>1.32</b>

**4.10.2 Autocorrelation Test**

Autocorrelation answers the question of whether the sample dataset was generated from a random process (Alreymi, 2012). Most times, it is estimated through the Durbin-Watson (DW) test, which, helps in determining whether the error terms in regression are auto-correlated. Kazmier (2003) observed that the value of the DW test statistics ranges between 0 and 4.0. At approximately 2.0, there is no autocorrelation. A strong positive correlation exists if the value is below 1.40 and a strong negative correlation exists if the value is greater than 2.60. In this research however, the Wooldridge test for autocorrelation in panel data was conducted and a significant p-value was the result as shown below:

**Wooldridge test for autocorrelation in panel data**

$H_0$ : no first-order autocorrelation

$$F(1, 66) = 4.744$$

$$\text{Prob} > F = 0.0330$$

We can therefore, reject the null hypothesis. The distribution contains problems of first order correlation (serial correlation). This model does not allowed



the effect of the error term of the first period to influence the error terms of subsequent periods. There is therefore, need to address the serial correlation problem (autocorrelation) to obtain the Best Linear Unbiased Estimator (BLUE) for the coefficients (Pantamee, 2014).

#### **4.10.3 Goodness of the Model Test**

This test show whether the independent variables simultaneously predict the dependent variable (Alreyami, 2012). The meaning to be deduced from this is that all the predictor and control variables (company size, financial leverage, market-to-book value, Board independence, duality, environmental experts, board size, policy administrators, foreign ownership concentration and industrial type); simultaneously predict the dependent variable of sustainability information disclosure (Alreyami, 2012). With a sample of 389 firms and 11 measurement items, this sample complies with the rule of thumb for the minimum sample size of 150 observation for structural equation models (SEM). The result of the prediction test using StataSE13 below showed “fitted values”, meaning this model is fit:

*(Option xb assumed; fitted values)*

#### **4.10.4 Model Specification Test**

There is the need also to determine whether the model is linear and/or functionally formulated or not. The result of the model test presented in Table 4.16 shows a p-value of the “hatsq” as 74.70%, a value greater than 0.05. The null hypothesis assumed that the model is not functionally formulated.

$H_0$      *model not functionally formulated*

Table 4.14  
*Functional Form*

<b>Sadi</b>	<b>t-value</b>	<b>p-value</b>
hatsq	0.32	0.747

As a result, we cannot reject the null hypothesis since the probability value is not significant. It is therefore agreed that the model is linear and not functionally formulated.

#### 4.10.5 Omitted Variable Test

Omitted variables often gives inconclusive results of models. The Ramsey RESET test was applied in testing for any omitted variables in the dataset of this research. The null hypothesis stated that the model has no omitted variables. We therefore, cannot reject the null hypothesis on the basis that the result is not significant as shown below. The final decision is to uphold the null hypothesis that the model has no omitted variables.

#### Ramsey RESET test using powers of the fitted values of sadi

$H_0$ : model no has omitted variables

$$F(3, 374) = 1.41$$

$$\text{Prob} > F = 0.2402$$

#### 4.10.6 Heteroskedasticity Test

For a prediction to be precise, the dependent variable must have constant variability with all the predictor variables otherwise, heteroskedasticity will occur (Lakkahnawanit, 2013). Heteroskedasticity may occur due to differences in sizes of observations or when there is abnormality of one of the variables. These may lead to

underestimation of regression coefficients and wrong p-value results (Lakkahnawanit, 2013).

### **Breusch-Pagan / Cook-Weisberg test for heteroskedasticity**

*H<sub>0</sub>: Constant variance*

Variables: fitted values of *sadi*

Prob > chi2 = 0.1131

In the analysis of Breusch-Pagan/Cook-Weisberg test computed above, the result based on the null hypothesis of constant variance shows an insignificant result ( $p = 0.1131$ ). The null-hypothesis can therefore, not be rejected. This show that there are heteroskedasticity which, by implication means the distribution does not have a constant variance.

These results shows that by the nature of the data some fundamental assumptions of the least square regression (normality distribution of the population and joint similarity between the standard deviation and variability, etc.) are unfulfilled (Yaffee, 2002) and that the distribution is not normal (Jann, 2012). In the above tests, autocorrelation and heteroskedasticity problems exists in the data distribution. This can strongly distort the classical least square estimator and lead to unreliable results (Verardi & Croux, 2008). Under these circumstances, robust regression method that is resistant to the influence of heteroskedasticity and outliers “may be the only reasonable recourse” that deals with this efficiently (Jann, 2012; Verardi & Croux, 2008; Yaffee, 2002). Therefore, the mixed result of heteroskedasticity and other diagnostic assumption tests (multicollinearity, autocorrelation, goodness of the model, model specification, omitted variables, and heteroskedasticity) calls for the data to be estimated on robust regression. The application of correlated panels corrected

standards error method of estimation using fixed effect (robust) estimation, random (robust) estimation or pooled OLS (robust) estimation is assumed will rectify autocorrelation, heteroskedasticity and any other diagnostic and normality problem affecting the dataset (Hossain, 2013; Kassestrup-Lamb, 2013).

#### **4.11 Empirical Results and Discussions**

The LM test and Hausman test conducted proves that the random-effect model is acceptable and preferred to the pooled OLS and fixed models for this research and therefore the most appropriate. Results from the robust estimation of the preferred model (random effect model) shows only two significant variables. They include board independence and duality. In addition, the record on Table 4.15 also shows an  $R^2$  value of 15.71% and overall significant level at 1%. Other variables like firm size, financial leverage, market-to-book value ratio, environmental expert board size, NSE, DPR/NESREA and foreign ownership concentration all showed insignificant or non-significant results.

Table 4.15  
*Estimated Random Effects Robust Regression Result*

F-value		0.0000
R <sup>2</sup>		0.1571
Variable	Coefficient	t-value
<b>Corporate Performance</b>		
Firms Size (Log10)	0.05199	1.47
Financial Leverage	0.00032	0.10
Market-to-Book Value Ratio	-0.00258	-0.94
<b>Board Characteristics</b>		
Board Independence	-0.04443***	-2.76
Duality	-0.08237**	-2.35
Environmental Expert	0.05592	0.77
Board Size	0.00822	0.85
<b>Environmental Policy Administrators</b>		
NSE	0.23982	1.82
DPR/NESREA	-0.03840	-0.98
<b>Corporate Foreign Ownership Concentration</b>		
Foreign Ownership Concentration	0.02048	0.46
<b>Industrial Type</b>		
Industrial Type	0.02724	1.87

**Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001**

From Table 4.15 again board independence is significant at 1% level of significant with an inverse relationship with disclosure. It means for every increase in the ratio of non-executive to executive board member by one unit disclosure falls by 4.44%. This is an indication that an increase in non-executive members in the board does not lead to a corresponding increase in disclosure on sustainability reporting, showing the lack of interest by non-executive members in environmental matters. This result supports the research of Barako *et al.* (2006) and Gul and Lang (2002) as opposed to studies with negative relationship (Chen & Jaggi, 2000; Donnelly & Mulcahy, 2008; Eng & Mak, 2003; Ho & Wong, 2001). The result does not support the stakeholder theory on which it is built. The presence of more non-executive members in the board does not lead to higher disclosure on sustainability issues.

Equally, duality has negative influence on sustainability reporting. An 8.24% magnitude of change in sustainability disclosure results whenever a two different person are assigned the positions of CEO and Chairperson. This influence is however, significant at 5% level of significant and in line with some studies

(Brickley, Coles & Terry, 1994; Cormier *et al.*, 2004; Cotter *et al.* 1997; Lee *et al.* 1992). Thus, the legitimacy theory seem to be violated here, as firms do not disclosure as a result of the fear of litigation.

## 4.12 Further Analysis of Variables

### 4.12.1 Analysis by Categories

Table 4.16

*Estimated Categorized Random Effects Robust Regression Results*

Item	F value	R <sup>2</sup>	Coefficient	t value
<b>Corporate Performance</b>				
Firm Size (Log10)	0.0131	0.0676	0.05726	1.67
Financial Leverage			-0.00239	-0.83
Market-to-Book Value Ratio			-0.00172	-0.62
<b>Board Characteristics</b>				
Board Composition	0.0001	0.1243	-0.04154***	-2.62
Duality			-0.08236**	-2.38
Environmental Expert			0.07760	1.13
Board Size			0.00906	0.91
<b>Environmental Policy Administration</b>				
NSE	0.0059	0.0643	0.21009	1.44
DPR/NESREA			0.00505	0.13
<b>Corporate Ownership Concentration</b>				
Foreign Ownership Concentration	0.0573	0.0047	0.03235	0.68

**Legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001**

Table 4.16 shows estimated results for all the determinants of sustainability reporting in this research on categorical basis (i.e. variable set). Variables that make up corporate financial performance have no significant relationships with sustainability reporting. Table 4.16 also shows the overall impact of corporate performance on disclosure is significant at 5% with a magnitude of 6.76%. Board independence and duality are significant at 1% and 5% levels of significance respectively. However, both variables have an inverse effect on sustainability disclosure. The overall impact however, is highly significant at a 12.43% magnitude. The total significance of environmental policy administrators on disclosure of sustainability information is at 5% with an R<sup>2</sup> value of 6.43% (Table 4.16). Again,

Table 4.16 reveals that the association of foreign ownership concentration with sustainability disclosure is insignificant.

In general, the rate of influence of the individual independent variables on sustainability disclosure is very weak. The highest rate is that of NSE which is insignificant. It can be seen that at about 21.01% rate of influence, NSE's monitoring role yield the best result, as it is not only the highest but a positive result as well. However, it is not significant.

#### 4.12.2 Moderating Effects of Environmental Policy Administrators (EPA)

Attempt has also been made to assess the moderating impact of environmental policy administrators (NSE and NESREA) on corporate performance, Board characteristics, foreign ownership concentration and industrial type.

Table 4.17  
*Estimated Moderating Random Effects Robust of Environmental Policy Administrators*

Variable	Coefficient	t-value
<b>F-value</b>		
		<b>0.0027</b>
<b>R<sup>2</sup></b>		
		<b>0.1132</b>
<b>Corporate Performance</b>		
Firms Size (Log10)	0.10800	0.35
Financial Leverage	0.00013	0.28
Market-to-Book Value Ratio	-0.00027	-0.71
<b>Board Characteristics</b>		
Board Independence	-0.22403***	-3.27
Duality	-0.00817	-1.71
Environmental Expert	0.01347	1.31
Board Size	0.01983	0.10
<b>Corporate Foreign Ownership Concentration</b>		
Foreign Ownership Concentration	0.00090	-0.15
<b>Industrial Type</b>		
Industrial Type	0.00298	1.42

**Legend:** \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

From Table 4.17, it is seen that collectively the independent variables have an 11.32% effect on sustainability reporting significant at 1% level of significance.

Notwithstanding this encouraging result, only one variable (board independent) have a significant moderating effect of environmental policy administrators on sustainability reporting. Board independence is not only significant at 1% but can influence sustainability disclosure by some 22.40% which is higher than the overall moderating impact of 11.32% (Table 4.17). This implies that for every fall in independent membership of the board, sustainability reporting increases by approximately 22.40%.

### 4.13 Test of Hypotheses

Result of the panel robust regression estimation as shown on Table 4.18 below, reveals mixed findings on the relationship between sustainability disclosure and its determinants which could be used to test the third objective of this research. While some predictors variables have direct influence on sustainability disclosures, others have negative influence. Similarly, while some are significant, others are not. However, only those variables with significant influence will be tested (board independence and duality).

Table 4.18  
*Hypothesis Summary*

Hypothesis	Relationships	Findings	
		Direction & Significance	Coefficient/ $\beta$ (Percentage)
H <sub>a1</sub>	Sadi and NSE monitoring	(+) & not significant	23.98
H <sub>a2</sub>	Sadi and DPR/NESREA	(-) & not significant	3.84
H <sub>a3</sub>	Sadi and firm size	(+) & not significant	5.20
H <sub>a4</sub>	Sadi and financial leverage	(+) & not significant	0.03
H <sub>a5</sub>	Sadi and market-to-book value	(-) & not significant	0.26
H <sub>a6</sub>	Sadi and board independence	(-) & significant	4.44
H <sub>a7</sub>	Sadi and duality	(-) & significant	8.24
H <sub>a8</sub>	Sadi and environmental expert	(+) & not significant	5.59
H <sub>a9</sub>	Sadi and board size	(+) & not significant	0.82
H <sub>a10</sub>	Sadi and foreign ownership concentration	(+) & not significant	2.05



The hypotheses formulated in chapter three are tested on individual basis. However, only those variables with significant results will be given priority. Using Table 4.18 as a guide, the result from the analysis shows that there is an inverse relationship between board independence and sustainability reporting. This result does not correspond with H<sub>a6</sub> which states that:

There is a direct or positive relationship between board independence and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

In this case, the impact is a negative one. It can therefore, be seen that both the stakeholders theory and the legitimacy theory as propounded and applied by Bhattacharyya (2016), Branco and Rodrigues (2007), Deegan (2007), Freeman *et al.* (2004), Gibson *et al.* (2005), Huang *et al.* (2014), Laplume *et al.* (2008), Sama-Long and Zesung (2016), Wu and Wokutch (2015); cannot hold for environmentally sensitive firms carrying out operations in Nigeria.

The duality of CEO's role is contained in hypothesis H<sub>a7</sub> which states:

H<sub>a7</sub> there is a positive relationship between the single role of CEOs and the disclosure of sustainability information by environmentally sensitive firms in Nigeria.

Analysed results shows that an inverse but significant association exists between duality and sustainability disclosure. Clearly, this outcome does not support hypothesis H<sub>a7</sub>. Again, the stakeholder and legitimacy theories supporting this assertion posit a direct relationship both in theoretically and practically (Bhattacharyya, 2016; Branco & Rodrigues, 2007; Deegan, 2007; Freeman *et al.*, 2004; Gibson *et al.*, 2005; Huang *et al.*, 2014; Laplume *et al.*, 2008; Sama-Long & Zesung, 2016; Wu & Wokutch, 2015).

#### 4.14 Summary of the Chapter

Using Excel 2013 and StataSE13, a thorough analysis of data was done. Results from the analysis shows a higher level of disclosure of 55.06%, with an undulating trend. The oil and gas industry has the highest level of disclosure in terms of sustainability information reporting. The trend is such that rose and fell over the periods observed (2009-2014). However, results from the J-T test and the independent sample test shows as increasing trend in sustainability information disclosure by environmentally sensitive firms operating in Nigeria. On the other hand, the result of the random effect robust regression gives only two significant results (board independence and duality). Table 4.15 shows that board independence have a highly significant relationship with sustainability reporting. The relationship between duality and sustainability reporting is nonetheless significant at 5% level of significance. Both relationships are negative. Thus while board independence have a 4.44% impact on sustainability information disclosure, duality have higher 8.24% effect on it. Further analysis on Table 4.16 and Table 4.17 on categorical and moderating relationships gave similar results.

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATION

#### 5.1 Introduction

Being the final chapter, this section opens with a brief on the background, problem statement, objectives and hypothesis of the research. Moving on to the framework, a summary of the relationship between sustainability disclosure and the deterministic variables is discussed. The population size and tools of analysis are also looked and the major findings of this research fully discussed and possible recommendations made. An outline of the researcher's contribution is then given and suggestions made for further research. Finally, some bottlenecks or shortcomings that mitigate against a full-fledged exploration of the concept of this research are mentioned in order to guide future researchers.

The questions raised by Racheal Carson in 1962 about the effects of industrialization on the natural environment has gone a long way in stimulating researches into sustainability issues both in the physical, natural as well as social sciences. Environmental problems have become so strong today that they not only prompt reaction from the United Nations but have also become major political issues in developed economies. Developing economies like Nigeria have however, done very little to combat environmental challenges. In the northern part of the country drought and desert encroachment are major environmental problems, while in the southern parts erosion and the negative impact of petroleum prospecting and mining pose serious environmental threats (Haggins & Frames, 2011). To this effect environmental problems in Nigeria have created major security and economic

challenges at both federal and local levels. Hence, this research attempts to know the response from environmental monitoring agencies regarding sustainability issues in Nigeria.

Motivation for this research stems from searching for a way out of the economic and social discontent caused by environmental pollution by environmentally sensitive companies in Nigeria, and which have become major social, economic and political issues in the country. The emphasis of sustainability disclosure as expressed in past researches concentrates on single or very few company characteristics and determinant elements like profitability, auditing firm, age of the company, tax rate, etc. What is more, the Nigerian government have for a long time had in place administrative structures and facilities to supervise and monitor environmental problems which, impact heavily on the populace. The desire to examine the role of these forces in monitoring environmental problems and examine environmental determinants categorically was the biggest stimulus for the author to embark on this research. It is therefore, necessary to analyze the sustainability issues in relation to disclosure of sustainability information and the application of environmental standards and guidelines by duly established environmental enforcement agencies.

This research basically aimed at examining the nature and trend of sustainability disclosure and to determine the relationship between environmental administrators and firms on compliance with sustainability reporting standards and guidelines at both local and global levels. The research was therefore build around the framework of a relationship between sustainability disclosure based on the G4 disclosure standards and guidelines; and the disclosure determinants of environmental policy administrators, corporate financial performance, Board characteristics and

foreign ownership concentration. To achieve these objectives, this research covers only environmentally sensitive firms in the economy. The analysis of data applied content analysis (dummies), descriptive statistics and regression analysis through analytical instruments like Excel 2013, SPSS22 and StataSE13. Proper validity and reliability tests were also conducted to ensure that the measuring instruments especially for the dependent variable and environmental policy administrators' indices (SADI and MVI) were accurate and free from errors.

The targeted companies of this research are 67 listed firms in the NSE for a 6-year period which gives rise to 402 observations. However, screening of data for outliers led to the elimination of 13 observations leaving the research with only 389 observations which is above the 150 observation minimum limit required for the application of SEM (structural equation model). The removal of the outlier leaves the distribution with a strongly unbalanced dataset which, in panel data analysis with StataSE13 is acceptable (Shehu, 2014).

## **5.2 Conclusions**

The objectives of this research are to determine the nature and trend of sustainability disclosure, the relationship between environmental determinants and sustainability reporting and the degree of compliance with environmental guidelines and regulations. After several diagnostic estimates, the researcher settled for pooled OLS robust regression, as it yield the best-estimated result for the relationship. The use of robust estimation is necessitated by the autocorrelation of the dataset and the presence of heteroskedasticity in the distribution. Jann (2012), Pantamee (2014), Verardi and Croux (2008), and Yaffee (2002) suggested that with robust regression

estimation, these problems would be taken care of. From the discussion of the analysed dataset of this research, several conclusions could be drawn. Results varied widely for the two significant variables of the analysis. The major discoveries from the analysed data are given below.

The level of sustainability information disclosure made by environmentally sensitive firms listed in the NSE is 55.06% (Table 4.9). This level of disclosure is above 50% and could therefore, be acceptable for an economy where sustainability reporting is voluntary (Enahoro, 2009). The nature and trend of disclosure is such that prior to the introduction of IFRS (31<sup>st</sup> December 2011), the rate of increase was at a slower pace. However, after the adoption of IFRS (1<sup>st</sup> January 2012), by the federal government there was an alarming increase. A critical observation of the disclosure trend shows that there was a fall in sustainability reporting in 2011 only to pick up again the following year. The overall trend however, shows a general increase in the pattern of sustainability disclosure. Thus, the level of disclosure and compliance with sustainability reporting standards are showing increasing trend.

The structure of the board of directors in relation to non-executive and executive members is negatively related to sustainability disclosure. The proportion of non-executive members to executive members have a significant influence on sustainability disclosure. This discovery showed that the more non-executive members there are in the board the lesser the disclosure on social and environmental issues. This result is contrary to the expectations that the dominance of non-executive members in companies' board of directors may encourage more disclosure on sustainability matters.

Similar results is also obtained for the duality. CEOs with single responsibility tend to discourage sustainability disclosure as opposed to CEOs with double role (Chairman and Managing Directors). The result indicate that this inverse relationship is significant as such the divisibility in function does not in any way encourage disclosure on sustainability issues.

Further analysis also shows that the evaluation of the independent variables based on categories (Table 4.17) leads to a collective significant effect of corporate performance, board characteristics and environmental policy administrators on sustainability reporting. A closer look at each category reveals that while only board independence and duality have significant effect on sustainability reporting. Moreover, environmental policy administrators variable have significant moderating impact on board independence only.

In a nutshell, the findings shows that of the 10 determinants of sustainability disclosures used for this research, there is none that did not show some relationship with sustainability disclosure (Table 4.11). However, only two (board independence and duality) have significant relationship with sustainability reporting.

### **5.3 Recommendations for Future Research**

The research has examined environmental policy administrators'' variable in relation to sustainability information disclosure based on the institutional theory, stakeholder, legitimacy and capital need theories with only two significant relationships. Future studies could do justice to this piece by examining these relationships either through another variable (mediator) or in conjunction with other variables (moderator) of sustainability information disclosure. Secondly, this research

considers only environmentally sensitive firms in Nigeria. An extension could be made by making comparison between companies in the environmentally sensitive sector, the economy as a whole or in the whole of the economic sub-region of West Africa (ECOWAS).

The primary contribution of this research is the discovery that the use of G4 (latest version of GRI) sustainability disclosure standards on an emerging and one of Africa's largest economy in ascertaining the relationship between sustainability reporting and its determinants by environmentally sensitive companies, yields high results.

Testing the relationship between environmental policy administrators (DPR, NESREA & NSE) and sustainability information disclosure in Nigeria's environmentally sensitive sector is an attempt to explore a virgin area through institutional theory. The application of variables by categories instead of on individual bases. For instance environmental policy administrators, corporate financial performance, board characteristics and foreign ownership concentration. Attached under each category are several independent variables. The exclusive application of the research on environmentally sensitive firms in an environmentally sensitive socio-political economy like Nigeria.

The use of analytical techniques like J-T test and mean  $\pm$  three times standard deviation rule in statistically estimating or determining the pattern and trend of disclosure on sustainability issues. The discovery of a higher magnitude/impact ( $R^2$ ) of the total relationship between firms' determinant characteristics and sustainability information disclosure compared to past studies like that of Enahoro (2009) is an equally positive contribution.



In the light of the discoveries, this research recommends the following:

1. The increasing trend in disclosure should be maintained with the prospect of future improvements so that more foreign investments could be attracted. The current dominance of local firms in the economy might be hindering higher disclosure. With more foreign direct investment, there is the probability of increasing sustainability disclosure considerably.
2. Firms' internal policy must ensure that non-executive members have interest in sustainability issues and that CEOs should work toward achieving the major objectives of stakeholder, legitimacy and capital need theories.



## REFERENCES

- Abiodun, D. (2015, April 22<sup>nd</sup>). "Who buys a private jet for \$10 million for goodness sake?" Alison-Madueke says she has not committed any crime. Retrieved from <http://newswirengr.com/2015/04/22/who-buys-a-private-jet-for-10million-for-goodness-sake-alision>.
- Aboody, D., M. E. Barth, and R. Kasznik (2004). "Firms" voluntary recognition of stock-based compensation expense." *Journal of Accounting Research*, 42, 123-150.
- Acti-Ifurueze, M. A. K., Etale, L. M. & Frank, B. P. (2013, March 12<sup>th</sup>). The impact of environmental cost on corporate performance. A study of oil companies in Niger Delta states of Nigeria. *Journal of Business and Management*. 2(2), 1-10.
- Adams, C. A. (2004). The ethical, social, and environmental reporting-performance portrayal gap. *Accounting, Auditing & Accountability Journal*. *Emerald Insight*. 17(5), 731-757.
- Adams, C. A., & Frost, G. (2006). Accounting for ethical, social, environmental, and economic issues: towards an integrated approach. *CIMA-Research Executive Summary Series*, 2(12), 1-6.
- Adams, C. A., & McNicholas, P. (2007). Making a difference: Sustainability reporting, accountability and organisational change. *Accounting, Auditing & Accountability Journal*, 20(3), 382-402.

- Adegbaju, A. A., & Olokoyo, F. O. (2008). Recapitalization and banks performance: a case study of Nigerian banks. *African Economic and Business Review*. ISSN 1109-5609
- Aert, W., Cormier, D. & Magnam, M. (2006, May/June). Intra-industry imitation in corporate environmental reporting: An international perspective. *Journal of Accounting and Public Policy*, 25(3). New York, ESEVIER.
- Ahmad, Z., Hassan, S. & Mohammad, J. (2003). Determinants of environmental reporting in Malaysia. *International Journal of Business Studies*, 11(1), 69-90.
- Ajibolade, S. O., Arowomole, S. S. A. & Ojikutu, R. K. (2010, January). Management accounting systems, perceived environmental uncertainty, and companies' performance in Nigeria. *International Journal of Academic Research*, 2(1), 195-201.
- Akbas, H. E. (2014). Company characteristics and environmental disclosures: an empirical investigation on companies listed on Borsa Istanbul 100Index. *Journal of Accounting and Finance*, 145-163.
- Alabede, J. O. (2012). *An investigation of factors influencing taxpayers' compliance behaviour: evidence from Nigeria*. A Ph.D. Thesis submitted to the Othman Yeop Abdullah Graduate School of Business, Universiti Utara, Malaysia.
- Alabi, O. F., & Ntukekpo, S. S. (2012). Oil companies and corporate social responsibility in Nigeria: an empirical assessment of chevron's community development projects in Niger delta. *British Journal of Arts and Social Sciences*, 4(2)2.

- Al-Farooque, O. (2010). An examination of the determinants of corporate ownership concentration in an emerging market context. *Malaysian Accounting Review*, 9(1), 105-122.
- Alfred, C. (2013). Nigeria Agip Oil Company's corporate social responsibility in the Niger delta of Nigeria: an assessment of an unusual corporate social responsibility paradigm. *Journal of Sustainable Development in Africa*, 15(8).
- Al-Matari, Y. A. A. T. (2013). *Board of Directors, Audit Committee Characteristics and the Performance of Public Listed Companies in Saudi Arabia*. Ph. D. Thesis – Othman Yeop Abdullah, Graduate School of Business, Universiti Utara, Malaysia.
- Alonso-Almeida, M., Llach, J., & Marimon, F. (2012, November 23<sup>rd</sup>). A closer look at “global reporting initiative” sustainability reporting as a tool to implement environmental and social policies: *A Worldwide Sector Analysis*, 21, 318-335.
- Altunbaş, Y., Kara, A., & van Rixtel, A. (2007). *Corporate governance and corporate ownership: The investment behaviour of Japanese institutional investors* (No. 0703). Banco de España.
- Alves, S. (2012). Ownership concentration and earnings management: Evidence from Portugal. *Australian Accounting Business and Finance Journal*, 6(1), 57-73.
- Amaize, E. (2016). In Delta, herdsmen kill three villagers daily, amputate young men, rape girls – Hon. Ivwurie. *VanguardNews* (2016). Retrieved 12<sup>th</sup> June, 2016 from Facebook. <http://www.vanguardngr.com/2016/06/delta-herdmen-kill-three-villagers-daily-amputate-young-men-rape-girls-hon-ivwurie/>

- Anderson, D. (2003). Environmental reporting and transport – the case of a public transport company. *Business Strategy and the Environment*, 12 386-399.
- Andrikopoulos, A. & Krikilani, N. (2013). Environmental disclosure and financial characteristics of the firm: the case of Denmark. *Corporate Social Responsibility and Environmental Management Journal*, 20, 55-64.
- Anyanwu, C. U. (2012, May 27<sup>th</sup> –June 1<sup>st</sup>). *The oil industry and the Nigerian environment*. IAIA 12 Conference Proceedings. Energy Future: The Role of Impact Assessment. 32<sup>nd</sup> Annual Meeting of the International Association for Impact Assessment (IAIA), Portugal.
- Aquino, M. N. (2009). An evaluation of financial and non-financial environmental disclosures of ten publicly listed mining companies in the Philippines. *DLSU Business and Economics Review*, 18(2), 55-64.
- Asaolu, T. O., Agboola, A. A., Ayoola, T. J., & Salamu, M. K. (2011). *Sustainability in the Nigerian oil and gas sector*. Environmental Management Conference Proceedings, Federal University of Agriculture Abeokuta, Nigeria.
- Aslan, H., & Kumar, P. (2012, April 25<sup>th</sup>). Strategic ownership concentration and the cost of debt. *The Review of Financial Studies*, 25(7), 2257-2299.
- Asuquo, A. I. (2012, January). Environmental friendly policies and their financial effects on corporate performance of selected oil and gas companies in Niger Delta region of Nigeria. *American International Journal of Contemporary Research*, 2(1), 168-173.

- Ayoola, T. J., & Olanmi, O. O. (2013). Business case for integrated reporting in Nigeria oil and gas sector. *Issues in Social and Environmental Accounting*, 7(1), 30-54.
- Babbie, E. (2004). *The practice of social research* (10<sup>th</sup> Ed.). Thompson, Wadsworth Inc.
- Ballou, B., Heitger, D. L., Landes, C. E., & Adams, M. (2006). The future of corporate sustainability reporting. *Journal of Accountancy*, 202(6), 65-74. Retrieved from <http://eserv.uum.edu.my/docview/206783794?accountid>
- Barako, D. G., Hancock P., & Izan, H. Y., (2006)<sup>a</sup>. "Factors influencing voluntary corporate disclosure by Kenyan companies". *Corporate Governance: An international Journal*, 14(2), 303-327.
- Barako, D. G., Hancock, P., & Izan, H. Y., (2006)<sup>b</sup>. Relationship between corporate governance attributes and voluntary disclosures in annual reports: The Kenyan experience. *Financial Reporting, Regulation and Governance*, 5(1), 1-25.
- Barde, I. M. (2009). *An evaluation of accounting information disclosure in the Nigerian oil marketing company*. A Ph.D. thesis submitted to the Department of Accounting Bayero University, Kano, Nigeria.
- Bartelmus, P. & Cleveland, C. (2008, July 25<sup>th</sup>). Measuring sustainable economic growth and development. *Environmental and Natural Resource Accounting*. <http://www.ecoearth.org/article/measuringsustainableeconomicgrowthanddevelopment>

- Basalamah, A. S. & Jermias, J. (2005, January-April). Social and environmental reporting and auditing in Indonesia: maintaining organizational legitimacy? *Gadjah Mada International Journal of Business*, 7(1), 109-127.
- Bassen, A., & Kovacs, A. M. M. (2008). Environmental, social and governance key performance indicators from a capital market perspective. *Zeitschrift für Wirtschafts-und Unternehmensethik*, (9/2), 182-192.
- Beaudry, F. (2014). The 10 countries with the least healthy environment. *Environmental Issues Categories*.  
[http://environment.about.com/od/biodiversityconservation/a/population\\_grow.htm](http://environment.about.com/od/biodiversityconservation/a/population_grow.htm)
- Becchetti, L. & Ciciretti, R. (2009). Corporate social responsibility and stock market performance. *Applied Financial Economics*, 19(16), 1283–1993.
- Beets, S. D., & Souther, C. C. (1999). Corporate environmental reports: The need for standards and an environmental assurance service. *Accounting Horizons*, 13(2), 129-145.
- Bell, J. & Lundblad, H. (2011). A comparison of ExxonMobil's sustainability reporting to outcomes. *Journal of Applied Business and Economics*, 12(1), 17-29.
- Berrone, P. & Gomez-Mejia, L. (2009). Environmental performance and executive compensation: An integrated agency-institutional perspective, 52(1), 103-126.
- Betry, M. A., and Rondinelli, D. A. (1998). Proactive corporate industrial management: *A New Industrial Revolution*. *Academy of management Executive*, 13(2), 38-50.

- Bewley, K. (2005). The impact of financial reporting regulation on the market valuation of reported environmental liabilities: preliminary evidence from US and Canadian public companies. *Journal of International Financial Management and Accounting*, 16(1), 1-48.
- Bhattacharya, A. (2014). Factors associated with the social and environmental reporting of Australian companies. *AABF Journal*, 8(1), 25-49.
- Bhattacharyya, A. (2016). Corporate Social and Environmental Responsibility in an Emerging Economy: Through the Lens of Legitimacy Theory. *Browser Download This Paper*.
- Bluszcz, A., & Kijewska, A. (2015). Challenges of sustainable development in the mining and metallurgy sector in Poland. *Metallurgija*, 54(2), 441-444.
- Borenstein, S. (2014, October 21). Earth heading hottest year on record. *Santa Fe New Mexican*. P 1.
- Brammer, S. & Pavelin, S. (2006). Voluntary environmental disclosures by large UK companies. *Journal of Business Finance and Accounting*, 33(7-8), 1168-1188.
- Branco, M. C. & Rodrigues, L. L. (2007, June). Issues in corporate social and environmental reporting research. *Issues in Social and Environmental Accounting*, 1(1), 72-90.
- Brickley, J. A., Coles, J. L., & Terry, R. L. (1994). Outside directors and the adoption of poison pills. *Journal of Financial Economics*, 35, 371-390.



- Brown, H. S., de Jong, M., & Levy, D. L. (2009). Building institutions based on information disclosure: lessons from GRI's sustainability reporting. *Journal of cleaner production*, 17(6), 571-580.
- Brown, H., Jong, M., & Lessidrenska, T. (2007). *The rise of the Global Reporting Initiative (GRI) as a case of institutional entrepreneurship*. Cambridge, Massachusetts, EUA (No. 36). University Harvard, Working Paper.
- Bruton, G. D., Ahlstrom, D., & Li, H. L. (2010). Institutional theory and entrepreneurship: where are we now and where do we need to move in the future?. *Entrepreneurship theory and practice*, 34(3), 421-440.
- Buniamin, S. (December 2010). The quantity and quality of environmental reporting in annual reports of public listed companies in Malaysia. *Issues in Social and Environmental Accounting*, 4(2), 115-135.
- Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: fad or trend?. *Accounting, Auditing & Accountability Journal*, 23(7), 829-846.
- Burritt, R. L., Hahn, T. and Schaltegger, S. (2002). Towards a comprehensive framework for environmental management accounting – Links between business actors and EMA tools. *Australian Accounting Review*, 12(2), 1-16.
- Butler, E. (2015, June 12<sup>th</sup>). BBC World Service News. 15:30 hrs. Malaysian time.
- Campbell, D., Craven, B. & Shrides, P. (2003). Voluntary social reporting in three FTSE sectors: a comment on perception and legitimacy. *Accounting, Auditing and Accountability Journal*, 16(4), 558-581.

- Campbell, J. L. (2007). Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. *Academy of management Review*, 32(3), 946-967.
- Cann, A. (2016, March 5<sup>th</sup> 3:00 pm). *Tutorials on Shapiro-Wilk Test*. <http://www.youtube.com/watch?v=QeKFuR4jBdA>
- CAPPETTA (2014, April 21<sup>st</sup>). Massachusetts Personal Injury Lawyer Blog: The importance of an expert opinion. *Cappetta Law Offices*. Retrieved from <http://www.massachusettspersonalinjurylawyer-blog.com/>
- Carbonify.com (2014). *What is Kyoto protocol?* <http://www.carbonify.com/articles/kyoto-protocol.htm>
- Carol, A. A. and Frost, G. – CIMA (2006). Accounting for ethical, social, environmental, and economic issues: Towards an integrated approach. *Research Executive Summary Series*, 2(12), 1-6.
- Cavanagh, S. M., Hahn, R. W. and Stavins, R. N. (2001, September). *National environmental policy during the Clinton years*. Resources for the Future, 1616 P. Street, NW Washington, D. C. 20036. <http://www.rff.org>.
- Chen, C. J. P., & Jaggi, B. (2000). Association between independent non-executive directors, family control, and financial disclosures in Hong Kong. *Journal of Accounting and Public Policy*, 19, 285-310.
- Cheng, E. C. M., & Courtenay, S. M. (2006). Board composition, regulatory regime, and voluntary disclosure. *ScienceDirect - The International Journal of Accounting*, 41, 262-289.

- Cheng, S., Evans III, J. H., & Nagarajan, N. J. (2008). Board size and firm performance: the moderating effects of the market for corporate control. *Review of Quantitative Finance and Accounting*, 31(2), 121-145.
- Chown, D. (2001). *A review of the social, economic, and environmental impact of the forestry industry in South Africa*. An M. Inst. Agrar. Research Report submitted to the School for Agriculture and Rural Development, University of Pretoria.
- Chukwubueze, A. O., & Nnaomah, K. C. (2012). Shell Petroleum Development Corporation: oil exploration and socio-economic life in Ogoni, Nigeria. *Journal of Sustainable Development*, 14(8), 132-140.
- Clapham, M. E. (2016, March 7<sup>th</sup> 4:20 pm). *Testing Normality: Shapiro-Wilk Test. Tutorials*. <http://www.youtube.com/watch?v=dRAqSsgkCUc>.
- Clarkson, P. M., Overell, M. B., & Chapple, L. (2011). Environmental reporting and its relation to corporate environmental performance. *ABACUS – A Journal of Accounting, Finance, and Business Studies*, 47(1), 27-60.
- Clarkson, P., Li, Y., Richardson, G. & Vasvari, F. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, 33, 303–327.
- Cleveland, C. (31<sup>st</sup> May 2010). *Environmental Change and Socio-economic Factors in Africa*. United Nations Environmental Program. Encyclopaedia of Earth.
- Cohen, A. J., & Harcourt, G. C. (2003). Retrospectives: whatever happened to the Cambridge capital theory controversies?. *The Journal of Economic Perspectives*, 17(1), 199-214.

- Connelly, J. T., & Limpaphayom, P. (2004). Environmental reporting and firm performance: evidence from Thailand. *Journal of Corporate Citizen*, 13, 137-149.
- Contrafatto, M. (2011). Social and environmental accounting and engagement research: reflections on the state of art and new research avenues. *Economia Aziendale Online*, 2(3), 273-289.
- Cooper, D. R., Schindler, P. S., & Sun, J. (2003). Business research methods.
- Cormier, D. & Morgan, M. (1999). Corporate environmental disclosure strategies: determinants, costs, and benefits. *Journal of Accounting, Auditing and Finance*, 14(4), 429-451.
- Cormier, D., Gordon, I. M. and Magnan, M. (2004). Corporate environmental disclosure: Contrasting management's perception with reality. *Journal of Business Ethics*, 49, 143-165.
- Cornelissen, J. P., Durand, R., Fiss, P. C., Lammers, J. C., & Vaara, E. (2015). Putting communication front and center in institutional theory and analysis.
- Cortez, M. A. A. (2011). Do markets care about social and environmental performance? Evidence from the Tokyo stock exchange. *Journal of International Business Research*, 10(2), 15-22.
- Cotter, J., Shivdasani, A., & Zenner, M. (1997). Do independent director enhance target shareholder wealth during tender offers? *Journal of Financial Economics*, 43, 195-218.
- Creel, T. S. (2010). Environmental reporting practices of the largest US companies. *Management Accounting Quarterly Fall*, 12(1), 13-19.

- Creswell, J. W. (1998). *Qualitative enquiry and research design: Choosing among five traditions*. London, Sage Publications, Inc.
- Criado-Jiménez, I., Fernández-Chulián, M., Larrinaga-González, C., & Husillos-Carqués, F. J. (2008). Compliance with mandatory environmental reporting in financial statements: The case of Spain (2001–2003). *Journal of Business Ethics*, 79(3), 245-262.
- Crowth, D. (2000). *Social and environmental accounting*. London; Financial Times. Prentice Hall.
- Curry, J. (2014, October 13). The global warming statistical meltdown. *The Wall Street Journal Europe*. P 1.
- Dacin, M. T., Goodstein, J., & Scott, W. R. (2002). Institutional theory and institutional change: Introduction to the special research forum. *Academy of management journal*, 45(1), 45-56.
- Damak-Ayadi, S. (2010). Social and environmental reporting in the annual reports of large companies in France. *Accounting and Management Information Systems*, 9(1), 22-44.
- Damjanov, N., Kauffman, R. S., & Spencer-Green, G. T. (2009, May). Efficacy, pharmacodynamics and safety of VX-702, a Novel p. 38 MAPK Inhibitor, in Theumatoid Arthritis. *ARTHRITIS & RHEUMATISM*. 60(5), 1232-1241.
- Dandago, K. I., & Arugu, L. O. (2014). Corporate social responsibility and environmental concerns in Nigeria: A critical focus on oil producing communities. *Issues in Social and Environmental Accounting*, 2, 104-115.

- De Jorge, J. & Laborda, L. (2011). Corporate growth, age and ownership concentration: Empirical evidence in Spanish firms. *Journal of Business Economics and Management*, 12(1), 164-196.
- Deegan C. (2002). The legitimising effect of social and environmental disclosures – a theoretical foundation. *Accounting, Auditing and Accountability Journal*, 15(3), 281–311.
- Deegan, C. (2007). *Financial accounting theory* (3rd Edition). McGraw-Hill, Sydney.
- Delgado-Garcia, J. B., Quevedo-Puente, E. & Fuente-Sabate, J. M. (2010). The impact of ownership concentration on corporate reputation: Evidence from Spain. *Corporate Governance: An International Review*, 18(6), 540-556.
- Delmas, M. & Blass, V. D. (2010). Measuring corporate environmental performance: the trade-off of sustainability ratings. *Business Strategy and the Environment*, 19, 245-260. <http://www.interscience.wiley.com>.
- Dingwerth, K. & Eichinger, M. (2010, August). Tamed transparency: How information disclosure under the global reporting initiative fails empower global environmental politics, 10(3), 74-96. <http://www.researchgate.net>
- Donaldson, T. & Preston, L. (2006), *Theories Used in IS Research: Stakeholder Theory*. <http://www.istheory.yorku.ca/stakeholdertheory.htm>.
- Dong, S. & Burritt, R. (2010). Cross-sectional benchmarking of social and environmental reporting practice in the Australian oil and gas industry, 18, 108-118. <http://www.interscience.wiley.com>.

- Donnelly, R., & Mulcahy, M. (2008). Board structure, ownership, and voluntary disclosure in Ireland. *Corporate Governance: An International Review*, 16(5), 416-429.
- Dragu, I. & Tiron-Tudor, A. (2013). The integrated reporting initiative from an institutional perspective: *Emergent factors. Precedia – Social and Behavioural Sciences*, 92, 275-279.
- Drexhage, J. & Murphy, D. (2010, September 19<sup>th</sup>). *Sustainable development: From Brundtland to Rio 2012*. International Institute for Sustainable Development (IISD). United Nations Headquarters, New York.
- ELEX Legal Practitioners & Arbitrators (1999). *Review of the national policy on the environment*. Nigeria, Ikoyi Lagos.
- El-Gazzar, S. M., Fornaro, J. M. & Jacob, R. A. (2006). *An examination of determinants and contents of corporate voluntary disclosure of management's responsibility for financial reporting*. Faculty Working Paper, Lubin School of Business, Pace University.  
[http://digitalcommons.pace.edu/lubinfaculty\\_workingpapers/56](http://digitalcommons.pace.edu/lubinfaculty_workingpapers/56).
- Elijido-Ten, E. (2009). Can stakeholder theory add to our understanding of Malaysian environmental reporting attitudes? *Researchgate: Malaysian Accounting Reviews*, 8(2), 85-110.
- Enahoro, J. A. (2009). *Design and bases of environmental accounting in oil and gas and manufacturing sectors in Nigeria*. A PhD Thesis submitted to Department of Accounting, College of Business and Social Sciences, Covenant University, Ota, Nigeria.

- Eng, L. L., & Mak, Y. T. (2003). Corporate governance and voluntary disclosure. *Journal of Accounting and Public Policy*, 22, 325-345.
- Environmental Guidelines and Standards for Petroleum Industry* (EGASPIN, 1991).  
Directorate of Petroleum Resources, Nigeria.
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, 26, 301-325.
- Faux, J. (2008). Displaying environmental information to satisfy utility and sufficiency in entity reporting. *Malaysian Accounting Review*, 7(2), 95-116.
- Fauzi, F. & Locke, S. (2012). Board structure, ownership concentration and firm performance: A study of New Zealand listed firms. *Asian Academy of Management Journal of Accounting and Finance (AAMJAF)*, 8(2), 43-67.
- Federal Environmental Protection Agency – FEPA (1998). *National policy on the environment (Revised Draft copy)*. The Presidency, Independence Way South Central Area, Garki, Abuja.
- Federal Ministry of Environment-FME (2013). *Policy instrument for the environment*. Nigeria, Abuja.
- Fernando, S., & Lawrence, S. (2014). A theoretical framework for CSR practices: integrating legitimacy theory, stakeholder theory and institutional theory. *Journal of Theoretical Accounting Research*, 10(1), 149-178.
- Feyzi, J. S., Kangarlouei, B. S., Soleymani, B. & Motavassel, M. (2013, January-February). Corporate governance, ownership concentration, cash holdings, and firm's value: A case of firms listed in Tehran stock exchange (TSE). *Asia*



- Firoz, C. A. M., & Ansari, A. A. (2010). Environmental accounting and international financial reporting standards (IFRS). *International Journal of Business and Management*, 5(10), 105-112.
- Firth, M. (1979). The impact of size, stock market listing, and auditors on voluntary disclosure in corporate annual reports. *Accounting and Business Research*, 9, 273-280.
- Fonseca, A. (2010, March). Barriers to Strengthening the Global Reporting Initiative Framework: Exploring the perceptions of consultants, practitioners, and researchers. In *Trabajo presentado en Accountability through Measurement: 2nd National Canadian Sustainability Indicators Network Conference*. Toronto. [Links].
- Fortanier, F. & Kolk, A. (2014, November 18<sup>th</sup>). *On the economic dimension of CSR: Exploring Fortune Global 250 reports*. University of Amsterdam. <http://www.dare.uv.nl>.
- Fortes, H. (2002). The need for environmental reporting by companies: an examination of the use of environmental reports by Swedish public companies. *Greener Management International*. Winter 2002. 77-92.
- Freedman, M. & Jaggi, B. (2005) "Global warming, commitment to the Kyoto protocol, and accounting disclosures by the largest global public firms from polluting industries", *The International Journal of Accounting*, 40(3), 215-232.

- Freeman, R. E., Wicks, A. C., & Parmar, B. (2004). Stakeholder theory and “the corporate objective revisited”. *Organization science*, 15(3), 364-369.
- Frost, G. R. (2007). The introduction of mandatory environmental reporting guidelines: Australian evidence, *ABACUS* 43(2), 190–216.
- Gary, R. (December 2007). Taking a long view about what we now know about social and environmental accountability and reporting. *Issues in Social and Environmental Accounting*, 1(2), 169-198.
- Gbadeyan, R.A. (2003) „Marketing environmental problems for solution“, in Jimoh, H. I. (Ed.): *Techniques in Environmental Studies*, 73–78, Nathadex Publishers, Ilorin.
- Geol, P. (July 2010). Triple bottom line reporting: an analytical approach for corporate sustainability. *Journal of Finance, Accounting, and Management*, 1(1), 27-42.
- Gibson, J. L., Caldeira, G. A., & Spence, L. K. (2005). Why do people accept public policies they oppose? Testing legitimacy theory with a survey-based experiment. *Political Research Quarterly*, 58(2), 187-201.
- Glass, J. (2012). The state of sustainability reporting in the construction sector. *Smart and Sustainable Built Environment*, 1(1), 87-104.
- Global Reporting Initiative (2000-2006). *Sustainability Reporting Guidelines*. RG. GRI Version 3.0. The Netherlands. <http://www.globalreporting.org>
- Global Reporting Initiative (2000-2011). *Sustainability Reporting Guidelines*. RG. GRI Version 3.1. The Netherlands. <http://www.globalreporting.org>

- Global Reporting Initiative (2000-2012). *G3.1 Sustainability reporting guidelines & oil and gas sector supplement*. Version 3.1 OGSS. Final version. The Netherlands. <http://www.globalreporting.org>
- Global Reporting Initiative (2011). *GRI and ISA 26000: How to use the GRI guidelines in conjunction with ISO 26000*. ISBN: 978-90-8866-041-2. <http://www.globalreporting.org>
- Godelnik, R. (2012, August 28<sup>th</sup>). *What is sustainability reporting? 8 tips for the casual reader*.
- Grande, T. L. (2016, March 3<sup>rd</sup> 4:03 pm). *Identifying multivariate outliers with mahalanobis distance in SPSS*. Tutorials. <http://www.youtube.com/watch?v=AXLAX6r5JgE>.
- Grande, T. L. (2016, March 4<sup>th</sup> 4:30 pm). *Conducting a Shapiro-Wilk Normality test in SPSS*. Tutorials. <http://www.youtube.com/watch?v=9KKAX5av7S4&eac=ANyPxKq13QRFL5Q>
- Gray R., Kouhy R., & Lavers S. (1995<sup>a</sup>). Corporate social and environmental reporting. A review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing and Accountability Journal*, 8(2), 47–77.
- Gray, R. (2001) “Thirty years of social accounting, reporting and auditing: What if anything we have learnt”, *Business Ethics: A European Review*, 10(1), 9 -15.
- Gray, R. H., Owen, D. L. and Maunders, K. T. (1987). *Corporate social reporting: Accounting and accountability*. Hemel Hempstead, UK. Prentice Hall.

- Gray, R. Owen, D. & Adams, C. (1996). *Accounting and accountability: Changes and challenges in corporate social reporting and environmental reporting*. Prentice-Hall: Hemel Hempstead.
- Grenoble Graduate School of Business (2010, March 28<sup>th</sup>). <http://www.lexicon.ft.com/term?term=ownership-concentration>.
- Guenther, E., Hoppe, H., & Poser, C. (2006). Environmental corporate social responsibility of firms in the mining and oil and gas industries: Current status quo of reporting following GRI guidelines. *Greener Management International*, (53), 7.
- Gul, F. A. & Leung, S. (2002). Board leadership outside director's expertise and voluntary disclosure. *Journal of Accounting and Public Policy*, 23, 1-29.
- Guthrie, J. & Mathews, M. R. (1985) "Corporate social accounting in Australian", In Preston, L. E. (Ed.), *Research in Corporate Social Performance and Policy*, 7, 251.
- Haddock-Fraser, J. & Fraser, I. (2008). Assessing corporate environmental reporting motivations: differences between „close-to-market“ and „business-to-business“ companies. *Corporate Social Responsibility and Environmental Management*, 15, 140–155.
- Haggins & Frames (January 2011). *Gender mainstreaming toolkit for national environmental policy and processes*. A Report submitted to the Ministry of Environment Abuja, Nigeria on Gender and environment.

- Haider, M. D. (June 2010). An overview of corporate social and environmental reporting (CSER) in developing countries. *Issues in Social and Environmental Accounting*, 4(1), 3-17.
- Hair Jr, J. F. (2006). Black, WC, Babin, BJ Anderson, RE & Tatham, RL (2006). *Multivariate data analysis*, 6.
- Hair, J. J., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate data Analysis*, (7th Ed.). Prentice-Hall International, London.
- Haladu, A. (2011, October). *An assessment of compliance with the statement of accounting standard on stocks (SAS 4) by listed firms in the Nigerian foods/beverages and tobacco industry*. M. Sc. Accounting Dissertation. Kano, Post Graduate School, Bayero University Kano, Nigeria.
- Haniffa R. M., & Cooke T. E. (2002). "Culture, corporate governance and disclosure in Malaysian corporations", *ABACUS*. 38(3), 27-60.
- Haniffa, R. M., & Cooke, T. E. (2005). "The impact of culture and governance on corporate social reporting". *Journal of Accounting and Public Policy*, 24(5), 391-430.
- Haslinda, A. & Fuong, C. C. (2010, March). The implementation of ISO14001 environmental management system in manufacturing firms in Malaysia. *Asian Social Science*, 6(3), 100-107. <http://www.ccsenet.org/ass>.
- Hedberg, C. & von Malmborg, F. (2003). The global reporting initiative and corporate sustainability reporting in Swedish companies. *Corporate Social Responsibility and Environmental management*, 10, 153-164.

- Helmenstine, A. M. (2011, August). Control variable definition (control in an experiment). *ThoughtCo*. Retrieved on 11<sup>th</sup> May 2017. [www.thoughtco.com/controlled-variable-definition-609094](http://www.thoughtco.com/controlled-variable-definition-609094)
- Ho, S. M. S. & Wong, K. S. (2001). A study of the relationship between corporate governance structures and the extent of voluntary disclosure. *Journal of International Accounting, Auditing & Taxation*, 10, 139–156.
- Holt, C. (2004). *Corporate Governance and Accountability Module of CPA Australia, Victoria*: Dakin University.
- Hope for Niger Delta Campaign – HNDC (2010, February 18<sup>th</sup>). *Environmental Pollution in the Niger Delta*. IT Nessel.
- Hossain, M., Islam, K. & Andrew, J. (2006). Corporate social and environmental disclosure in developing countries: Evidence from Bangladesh. *Research Online*, University of Wollongong, Faculty of Business. [www.http://ro.uow.edu.au](http://ro.uow.edu.au)
- Hossain, S. (2013, July 27<sup>th</sup>). *Removal of Serial Correlation. Model One. STATA*. <http://www.youtube.com/watch?v=p1ffU86Olko>.
- Hosseini, H. M., & Kaneko, S. (2012). Causality between pillars of sustainable development: Global stylized facts or regional phenomena? *Ecological Indicators*, 14(1), 197-201.
- Huang, T. Pepper, M. & Bowrey, G. (2014). Implementing a sustainability balanced scorecard to contribute to the process of organizational legitimacy assessment. *Australian Accounting, Business, and Finance Journal*.

- Hussein, N. A. M. A. (2012, December). *Corporate social responsibility: perception and disclosure in response to CSR award with the moderating effect of family group affiliation in Yemen*. Othman Yeap Abdullah, Graduate School of Business, University Utara, Malaysia.
- Ienciu, I. A. (2012). The contribution of the environmental management system to ensuring environmental reporting. *Studia UBB, ECONOMICA*, 52(2), 49-57.
- Ihlen, O., & Roper, J. (2014). Corporate reports on sustainability and sustainable development: „We have arrived“. *Sustainable development*, 22(1), 42-51.  
<http://www.wileyonlinelibrary.com>
- Ikelegbe, A. (2005). State, ethnic militias, and conflict in Nigeria. *Canadian Journal of African Studies/La Revue canadienne des études africaines*, 39(3), 490-516.
- Ikpe, S. (2011). *Safety and environmental team re-strategizes on regulatory oversight*. *DPR News*. A quarterly Journal of the Department of Petroleum Resources, 6(2), 2.
- Information Nigeria (2015, June 4<sup>th</sup>). *Reps pass PIB on last legislative day*.  
<http://www.informationng.com>
- Initiative, G. R. (2013). G4 sustainability reporting guidelines. *Global Reporting Initiative: Amsterdam, NY, USA*, 3-94.
- Ionel-Alin, I. (2008). *Environmental reporting and corporate governance for FTSE100 listed companies*. Babe-Bolyai University, Faculty of Economics and Business Administration, 681-687.
- Isaksson, R., & Steimle, U. (2009). What does GRI-reporting tell us about corporate sustainability? *The TQM Journal*, 21(2), 168-181.

- Ismail, K. N. I. K. & Ibrahim, A. H. (2008). Social and environmental disclosures in the annual reports of Jordanian companies. *Issues in Social and Environmental Accounting*, 2(2), 198-210.
- Jann, B. (2012). Robust regression in Stata.
- Japan Government (Ministry of the Environment). *Environmental reporting guidelines. Tentative Translation* (March 2004).
- Jenkins, H. & Yakovleva, N. (2006). Corporate social responsibility in the mining industry: Exploring trends in social and environmental disclosure, 14, 271-284.
- Jensen, C. & Meckling, W. (1976, October 3<sup>rd</sup>). "Theory of the Firm: Managerial behaviour agency cost and capital structure". *Journal of Financial Economics*, 305-360.
- Jorgenson, D. W. (1963). Capital theory and investment behavior. *The American Economic Review*, 53(2), 247-259.
- Kadafa, A. A. (2012). Oil exploration and spillage in the Niger Delta of Nigeria. *Civil and Environmental Research*, 2(3), 38-51.
- Kantudu, S. A. (2006). *Application of accounting standards on employee retirement benefits by quoted firms in Nigeria*. PhD Accounting and Finance Thesis. Zaria, Post Graduate School, Ahmadu Bello University.
- Kapopoulos, P. & Lazaretou, S. (2009). Does corporate ownership concentration matter for economic growth? A cross-country analysis. *Managerial and Decision Economics*, 30, 155-172.



- Kasum, A. S. (2010). Environmental degradation problems caused by human activities in Nigeria: enforced (taxation) versus voluntary (social responsibility) solutions. *International Journal of Banking, Accounting, and Finance*, 2(3), 236–250.
- Kazmier, L. J. (2003). *Schaum's Outline of Business Statistics*. Schaum Pub Co.
- Khalid Md. Bahauddin, N. A. (2012, August). Impact of climate change on real estate sector in Bangladesh: A conceptual analysis and way forward to sustainable economy. *Bangladesh Research Publication Journal*, 7(2), 123-132.
- Khanna, M., Quimio, W. R. H. & Bojilova, D. (1997, May). Toxics release information: A policy tool for environmental protection. *Journal of Economics Research and Management*. <http://www.researchgate.net>
- Kolk, A., Walhain, S. & van de Wateringen, S. (2001). Environmental reporting by the fortune global 250: Exploring the Influence of Nationality and Sector. *Business Strategy and the Environment*, 12, 15-28.
- Kornblum, W. & Julian, J. (1992). *Social problems*. 7<sup>th</sup> Edition, United States of America. Prentice Hall Englewood Cliffs, NJ 07632.
- KPMG, (2011). *Sustainability Reporting – What you should know*. <http://www.kpmg.com>
- Lakkanawanit, P. (2013). *The influence of stakeholders' salience and engagement on corporate social responsibility disclosure of companies listed on the stock exchange of Thailand*. Ph. D. Thesis – Othman Yeop Abdullah, Graduate School of Business, Universiti Utara, Malaysia.

- Lamprinidi, S., & Kubo, N. (2008). Debate: the global reporting initiative and public agencies. 326-329.
- Lancaster, K. (2014). Social construction and the evidence-based drug policy endeavour. *International Journal of Drug Policy*, 25(5), 948-951.
- Laplume, A. O., Sonpar, K., & Litz, R. A. (2008). Stakeholder theory: Reviewing a theory that moves us. *Journal of management*, 34(6), 1152-1189.
- Lappalainen, J. & Nishanen, M. (2009). Does board composition and ownership concentration affect firm growth? Evidence from Finnish SMEs. *Research in Economics: Central and Eastern Europe*, 1(27) (1), 66-83.
- LeBrun, J. (2016). Advantages of financial leverage. *Small Business Chron.com*.  
Retrieve from <http://smallbusiness.chron.com/advantages-financial-leverage-24808.html>
- Lee, C. I., Rosenstein, N., Rangan, N., & Davidson, W. N. I. (1992). Board composition and shareholder wealth: The case of management buyouts. *Financial Management*, 12, 58-72.
- Lee, K. (2011). Motivations, barriers, and insecurities for adopting environmental management (cost) accounting and related guidelines: study of the republic of Korea. *Corporate Social Responsibility and Environmental Management*, 18, 39-49
- Levy, D. L., Brown, H. S. & de Jong, M. (2010). The contested politics of corporate governance: The case of global reporting initiative, 49(1), 88-115.

- Lindblom, C. K. (1994). „The implications of organizational legitimacy for corporate social performance and disclosure“. Paper presented at the Critical Perspective on Accounting Conference, New York.
- Liu, X., & Anbumozhi, V. (2009). Determinant factors of corporate environmental information disclosure: an empirical study of Chinese listed companies. *Journal of Cleaner Production*, 17(6), 593-600.
- Llena, F. Moneva, J. M., and Hernandez, B. (2007). Environmental disclosures and compulsory accounting standards: the case of Spanish annual reports. *Business Strategy and the Environment*, 16, 50-63.
- Lungu, C. I., Caraiani, C., Dascalu, C. and Guse, G. R. (Dec. 2009/Jan. 2010). Social and environmental determinants of risk and uncertainties reporting. *Issues in Social and Environmental Accounting*, 3(2), 100-116.
- Madalina, G., Nadia, A. & Catalin, A. (2010). The role of the accountancy profession bodies in developing social and environmental reporting. *Economic Science Series*, 922-628.
- Magness, V. (2006). “Strategic posture, financial performance, and environmental disclosure – An empirical test of legitimacy theory”. *Accounting, Auditing and Accountability Journal*, 19(4), 540-563.
- Malarvizhi, P. & Yadav, S. (December 2008/January 2009). Corporate environmental disclosures on the internet: an empirical analysis of Indian companies. *Issues in Social and Environmental Accounting*, 2(2), 211-232.

- Malone, D., Fries, C., & Jones, T. (1993). An empirical investigation of the extent of corporate financial disclosure in the oil and gas industry. *Journal of Accounting, Auditing and Finance*, 8, 249-273.
- Mangena, M., Tauringana, V. & Chamisa, E. (2012). Corporate boards, ownership concentration and firm performance in an environment of severe political and economic crisis. *British Journal of Management*, 23, 523-541.
- Maquieira, C. P., Espinosa, C. E., & Vieito, J. P. (2012). Corporate performance and ownership concentration: Empirical evidence for Chile. *Quarterly Journal of Finance and Accounting*, 50(1), 75-96.
- Marshall, J. (2015, June 24<sup>th</sup>). *BBC World Service News*. 20:00 hrs. Malaysian time.
- Mathews, M. R. (2009). Further thoughts on mega-accounting and the need for standards. *Issues in Social and Environmental Accounting*, 2(20), 158-175.
- Matsumura, E. M., Prakash, R. & Vera-Munoz, S. C. (2014). Firm-value effects of carbon emissions and carbon disclosure. *The Accounting Review*, 89(2), 695-724.
- Mayer, D. O. (2006), *Stakeholder Theory*. *Encyclopaedia of business 2<sup>nd</sup> edition*.  
<http://www.referenceforbusiness.com/encyclopedia/sel-str/stakeholder-Theory.html>.
- Mayhara, K., Yamaguchi, A., Takenouchi, H., Kariya, T., Taguchi, H., & Shimizu, N. (2012, October). Osteoblasts stimulate osteoclast genesis via RANKL expression more strongly than periodontal ligament cells do in response to PGE<sub>2</sub>. *OralBiology*, 57(10), 1377-1384.

- Mbat, D., Ibok, E., Daniel, E., and Campus, O. A. (2013). ExxonMobil and corporate social responsibility in Akwa Ibom state, Nigeria: Past and present. International Institute of Science, Technology, and Education. *Public Policy and Administration Research*, 3(3), 21-28. <http://www.iiste.org>.
- McMahon, M. S. (1995, April). The growing role of accountants in environmental compliance. *The Ohio CPA Journal*, 21-25.
- Milne, M. J., Ball, A., & Gray, R. (2008, August). Wither ecology? The triple bottom line, the global reporting initiative, and the institutionalization of corporate sustainability reporting. In *American Accounting Association Annual Meeting, Anaheim*.
- Min, L. K. (2010). *The perceptions of ethics and social responsibility of Malaysian international chamber of commerce and industry corporate members in relation to ISO26000 – Social Responsibility Adoption*. Ph. D. Thesis – College of Business, Universiti Utara, Malaysia.
- Mobbs, P. M. (February 2014). *The mineral industry of Nigeria*. US Geological Survey, Department of Interior.
- Mobus, J. L. (2011). Developing collective intentionality and writing the rules of the game for environmental reporting: A Content Analysis of SOP96-1: Comment Letters. *Accounting and the Public Interest*, 11, 68-95.
- Mohammed, N. T. (2015, March 11<sup>th</sup>). Desertification in northern Nigeria: Causes and implications for national food security. *Peak Journal of Social Sciences and Humanities*, 3(2), 22-31.

- Moneva, J. & Llana, F. (2000). Environmental disclosures in the annual reports of large companies in Spain. *The European Accounting Review*, 9(1), 7–29.
- Moneva, J. M., Archel, P., & Correa, C. (2006). GRI and the camouflage of corporate unsustainability. *Accounting Forum*, 30, 121-137.
- Monteiro, S. M. S., & Aibar-Guzman, B. (2010). Determinants of environmental disclosure in the annual reports of large companies operating in Portugal. *Corporate Social Responsibility and Environmental Management*, 17, 185-204.
- Montgomery, S. (Presenter). (2015). Paris climate deal. Podcast retrieved from <http://tunein.com/radio/BBC-World-Service-West-Africa-s140656/>
- Moroney, R., Windsor, C. and Aw, Y. T. (2012). Evidence of assurance enhancing the quality of voluntary environmental disclosure: an empirical analysis. *Accounting and Finance*, 52, 903-939.
- Mosene, J. A., Burritt, R. L., & Sanagu, M. V. (2013). Environmental reporting in the Spanish wind energy sector: An institutional view. *Journal of Cleaner Production*, 40, 199-211.
- Muhibudeen, L. & Haladu, A. (2015). The impact of cash less policy tools on money circulating outside Nigerian banks. *International Journal of Business, Economics and Law*, 8(3), 47-52. ISSN 2289-1552.
- Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5, 147-175.

- Natufe, I. (2001, November 2<sup>nd</sup> – 4<sup>th</sup>). *The Problematic of Sustainable and Corporate Social Responsibility: Policy Implications for the Niger Delta*. Uhrobo Historical Society 2<sup>nd</sup> Annual Conference and General Meetings.
- Ndamba, R. (2012). *Zimbabwe: public sector has a role in environmental sustainability*. [www.http://allAfrica.com](http://allAfrica.com)
- NESREA (2008). *National environmental standards and regulations enforcement agency of Nigeria*. <http://www.nesrea.gov.ng/faq.html>.
- NESREA (2013). *Laws and regulations*. <http://www.nesrea.gov.ng/regulationsindex.php>.
- NESREA.org (2015, May 7<sup>th</sup>). *The establishment of the national environmental standards and regulations enforcement agency of Nigeria*. <http://www.nesrea.org/about.php>
- Ngwakwe, C. C. (2009). Environmental responsibility and firm performance: evidence from Nigeria. *International Journal of Humanities and Social Sciences*, 3(2), 97-103.
- Nigerian Stock Exchange (2012). <http://www.nse.com.ng/>
- Nigerian Stock Exchange (2012). *Nigerian Stock Exchange All Share Index* <http://www.bloomberg.com/quote/NGSEINDEX:IND>
- NIJA.com (2015, April 27<sup>th</sup>). *Asari Dokubo threatened to deal with Buhari*. [www.http://naija.com](http://naija.com) 03:10 hrs.
- Nikolaeva, R. & Bicho, M. (2011). The role of institutional and reputational factors in the voluntary adoption of corporate social responsibility reporting standards. *Journal of the Academy of Marketing Science*, 39(1), 136-157.

- NNPC (2014, July 12<sup>th</sup>). *Nigerian National Petroleum Corporation*.  
[www.http://nnpcgroup.com](http://nnpcgroup.com)
- Nomjov, C. (2015, March 24<sup>th</sup>). *Five feared dead and scores wounded as Fulani herdsman lay siege on Taraba village*. <http://www.NewsWireNGR.com>.
- NSE FactBook (2011/2012). *Nigerian Stock Exchange*.  
[www.http://nigerianstockexchange.com](http://nigerianstockexchange.com)
- NSE FactBook (2012/2013). *Nigerian Stock Exchange*.  
[www.http://nigerianstockexchange.com](http://nigerianstockexchange.com)
- Nyor, T. (2008). *Assessment of the level of accounting information disclosed in the financial statements of Nigerian banks*. A Ph.D. Thesis presented to the Department of Economics and Management Sciences, Nigerian Defence Academy, Kaduna.
- O'Dwyer, B. (2003). The ponderous evolution of corporate environmental reporting in Ireland: Recent evidence from publicly listed companies. *Corporate Social Responsibility and Environmental Management*, 10(2), 91–100.
- Oduah, Z. (2015, April 27<sup>th</sup>). *Buhari does not have that power to send anybody to prison – Asari-Dokubo*. <http://www.NewsWireNGR.com>
- Offiong, K. A. (2000, September 1<sup>st</sup>). Environmental problem in the oil rich Niger Delta in Nigeria: The petrodollar oil versus the ecosystems survival. News line at Green Africa. <http://www.greenafrica.org>
- Ofuani, A. I. (2011). Environmental regulation of offshore (E & P) waste management in Nigeria: how effective. *Law Environment and Development (LEAD) Journal*, 7(2), 79-94.



- Ogundipe, S (2016, June 10<sup>th</sup>). Niger Delta Avengers blows up another AGIP facility. *Premium Times*. <http://www.wp.me/p2LdGt-R15>
- OnTheIssues (2012, September 4<sup>th</sup>). *Democratic Party platform on the environment*. [http://www.ontheissues.org/Celeb/Democratic\\_Party\\_Environment.htm](http://www.ontheissues.org/Celeb/Democratic_Party_Environment.htm).
- Osu, P. (2011). *Government steps up regulatory compliance in the oil and gas industry... And sectoral activities to gulp \$20 billion annually*. DPR News. A quarterly Journal of the Department of Petroleum Resources. 6(2), 1.
- Osu, P. (2012, April). *DPR repositions for improved regulation of the oil and gas industry... Mandates additional requirements for petroleum product depots*. DPR News. A quarterly Journal of the Department of Petroleum Resources, 7(1), 1.
- Othman, R. & Ameer, R. (2009, March 19<sup>th</sup>). Corporate social and environmental reporting: where are we heading? A survey of the literature. *International Journal of Disclosure and Governance*, 6, 298-320.
- Othman, R. & Ameer, R. (2010). Environmental disclosures of palm oil plantation companies in Malaysia: A tool for stakeholder engagement. *Corporate Social Responsibility and Environmental*, 17, 52-62.
- Otiotio, D. (2012). *An overview of the oil and gas industry in Nigeria*. United States Energy Information Administration.
- Owolabi, A. A. (2007). *Incorporating environmental costs into Nigeria oil and gas accounting*. Ph.D. thesis submitted to the department of management and accounting. Faculty of Administration, Obafemi Awolowo University; Ile-Ife, Nigeria.

- Pantamee, A. A. (2014, November). *The effect of corporate governance on corporate social responsibility disclosure in the Nigerian petroleum marketing industry*. Thesis Submitted to Othman Yeap Abdullah Graduate School of Business, Universiti Utara, Malaysia.
- Paquette, D. M., Bryant, J., & De Wit, J. (2011). Use of respondent-driven sampling to enhance understanding of injecting networks: a study of people who inject drugs in Sydney, Australia. *International Journal of Drug Policy*, 22(4), 267-273.
- Parker, D. (2005). „Social and environmental accountability research: A view from the commentary box“. *Accounting, Auditing & Accountability Journal*, 18(6), 842-860. <http://www.dx.doi.org/10.1108/09513570510627739>.
- Patten, D. (2002). The relation between environmental performance and environmental disclosure: a research note. *Accounting, Organizations and Society*, 27, 763–773.
- Payne, T. N., & Dauterive, F. R. (2008, May). A Comparison of total laparoscopic hysterectomy to robotically assisted hysterectomy: Surgical outcomes in a community Practice. *Journal of Minimally Invasive Gynaecology*. <http://www.researchgate.net/publication/5267790>.
- Peavler, R. (2016). *What is the market-to-book financial ratio? How analysts use the market-to-book financial ratio to assess value*. <https://www.thebalance.com/what-is-the-market-to-book-financial-ratio-393212>

- Petroleum Industry Bill (2009). *Federal ministry of petroleum resources*. Office of the Honourable Minister of Petroleum Resources. 11<sup>th</sup> Floor, Block D NNPC Towers Herbert Macaulay Way, Central Business District Abuja, Nigeria.
- Phillips, R., Freeman, R. E., & Wicks, A. C. (2003). What stakeholder theory is not. *Business ethics quarterly*, 13(04), 479-502.
- Pindado, J., & De La Torre, C. (2011). Capital structure: New evidence from the ownership concentration. *International Review of Finance*, 11(2) 213-226.
- Plumlee, M., Brown, D., Hayes, R. M. & Marshall, R. S. (2010). *Voluntary environmental disclosure and firm value: Further evidence*. Working paper. University of Utah: Salt Lake City.
- Prado-Lorenzo, J., Gallego-Alvarez, I. & Garcia-Sanchez, I. M. (2009). Stakeholder engagement and corporate social responsibility reporting: The ownership concentration effect. *Corporate Social Responsibility and Environmental Management*, 16, 94-107.
- Pramanic, A. K., Shil, N. C. & Das, B. (March 2008). Environmental accounting and reporting with special reference to India. MPRA (Munich Personal RePEc Archive). <http://www.mpra.ub.uni.muenchen.de/7712/>
- Premium Times (2017, January 9<sup>th</sup>). *Buhari sacks official whose actions led to Adeboye's exit as RCCG leader*. <http://www.premiumtimesng.com/news/>
- PwC (2016). *Board composition and shareholder activism*. <https://www.pwc.com/us/en/governance-insights-center/publications/assets/board-composition-and-shareholder-activism.pdf>

- Rahaman, A. S., Lawrence, S. & Roper, J. (2004). Social and environmental reporting at the VRA: Institutional legacy or legitimation crisis? *Critical Perspective on Accounting*, 15(1), 35-56.
- Rahman, A. A., Hashim, M. F. A. M., & Abubakar, F. (2010, June). Corporate social reporting: a preliminary study of Bank Islam, Malaysia. *Issues in Social and Environmental Accounting*, 4(1), 18-39.
- Rajab, B. (2009). *Corporate risk disclosure: Its determinants and its impact on the company's cost of equity capital*. Ph.D. thesis submitted in partial fulfilment of the requirement of Edinburg Napier University for the degree of Doctor of Philosophy School of Accounting, Economics & Statistics. The Business School, Edinburg Napier University, UK.
- Rashid, A., & Lodh, S. C. (2008) "The influence of ownership concentrations and board practices on corporate social disclosures in Bangladesh", *Research in Accounting in Emerging Economies*, 8, 211-237.
- Regoniel, P. (2016). What is the difference between the theoretical and the conceptual framework? Retrieved 6<sup>th</sup> May, 2016 from Knoji Consumer Knowledge. <https://www.college-college-life.knoji.com/>
- Rikhardsson, P. & Holm, C. (2008). The effects of environmental information on investment allocation decisions: An experimental Study. *Business Strategy and the Environment*, 17, 382-397.
- Rondinelli D. A. (2006, October). Globalization of sustainable development? Principles and Practices in Transnational Corporations (TNCs). *International Research Colloquium*. <http://www.ciber.gatech.edu>

- Rossi, N. & Trequattrini, R. (2010). Environmental reporting and accountability in the Lazio region between national guidelines and pilot experiences of local governments in Italy. *Economia Aziendale Online 2000 web*, 3, 323-334.
- Salewicz, S. (1997). *The role of monitoring and evaluation in strategic management and organizational development*. Report of an international workshop organized by International Development Research Centre (IDRC), Canada and BAIF Development Research Foundation, India.
- Salim, B. (2011). *Executive director remuneration and corporate governance in Malaysia*. Ph.D. thesis submitted to the College of Business, Utara Universiti, Malaysia.
- Sama-Lang, I., & Zesung, N. A. (2016). The stakeholder theory of corporate control and the place of ethics in OHADA: The case of Cameroon. *African Journal of Business Ethics*, 10(1).
- Scott, W. R. (1987). The adolescence of institutional theory. *Administrative science quarterly*, 493-511.
- SEC Code (2011). *Code of corporate governance for public companies in Nigeria (2011)*. Nigeria Security & Exchange Commission.
- Securities & Exchange Commission of Nigeria (2011). *Code of corporate governance for public companies in Nigeria*. Nigeria Security & Exchange Commission. <http://www.sec.gov.ng>
- Securities & Exchange Commission of Nigeria (2011, August 6<sup>th</sup>). "Who we are". <http://www.sec.gov.ng>.

- Sekaran, U., & Bougie, R. (2013). *Research methods for business – A skill building approach*, 6th edition. West Sussex, United Kingdom: John Wiley & Sons.
- Shabbier, A., Tahir, S. H., & Aziz, B. (2013). Corporate governance through ownership concentration. For the Karachi Stock Exchange (KSE-100) Index. *Asian Journal of Management Sciences*, 7(1), 68-81.
- Shah, A. (2014, January 19). Global Issues: Social, political, economic, and environmental issues that affect us all. *Global Issues*.  
<http://www.globalissues.org/about>
- Shehata, N. F. (2014). Theories and determinants of voluntary disclosure. *Accounting and Finance Research*, 3(1), 18-26.
- Shehu, A. (2014). *Econometrics of panel data*. University Putra, Malaysia.  
<http://www.abdulazizshehu@rocketmail.com>
- Sherman, W. R., (2009, May). The global reporting initiative: What value is added? *International Business and Economics Research Journal*, 8(5), 9-21.
- Shields, P. and Rangarjan, N. (2013). *A Playbook for Research Methods: Integrating Conceptual Frameworks and Project Management*. Stillwater: New Forums Press
- Sikes, M. (2013). *Split decisions: the pros and cons of separating CEO and chairman roles*. Corporate Compliance Insights.  
<http://corporatecomplianceinsights.com/split-decisions-the-pros-and-cons-of-separating-ceo-and-chairman-roles/>

- Skouloudis, A., Evangelinos, K., & Kourmousis, F. (2009). Development of an evaluation methodology for triple bottom line reports using international standards on reporting. *Environmental Management*, 44(2), 298-311.
- Smith, M., Yahya, K. & Amiruddin, A. M. (2007). Environmental disclosure and performance reporting in Malaysia. *Asian Review of Accounting*, 15(2), 185-199.
- Solomon, J. (2007). *Corporate governance and accountability*. Second Edition, John Wiley, & Sons, Ltd.
- SSE (2013). *Nigeria stock exchange joins the United Nations sustainable stock exchanges (SSE) initiative*. SSE initiative in partnership with United Nations Environmental Program (UNEP) Finance Initiative and UN Global Compact. <http://www.SSEinitiative.org>
- SSE (2014). *2014 report on progress*. A paper presented for the sustainable stock exchanges 2014 global dialogue. <http://www.SSEinitiative.org>
- St. John, T. (2009). *Interpreting the Standard Deviation*. [http://www.youtube.com/watch?v=\\_hFrXUGgDF8](http://www.youtube.com/watch?v=_hFrXUGgDF8).
- Stanny, E. & Ely, K. (2008). Corporate environmental disclosure about the effects of climate change. *Corporate Social Responsibility and Environmental Management*, 15, 338–348.
- Suddaby, R. (2010). Challenges for institutional theory. *Journal of Management Inquiry*, 19(1), 14-20.

- Sulaiman, M. & Mokhtar, N. (2012, May 15<sup>th</sup>). Ensuring sustainability: a preliminary study of environmental management accounting in Malaysia. *International Journal of Business and Management Sciences*, 5(2), 85-102.
- Sumiani, Y., Haslinda, Y. & Lehman, G. (2007). Environmental reporting in a developing country: A case study on status and implementation in Malaysia. *Journal of Cleaner Production*, 15, 895-901. <http://www.elsevier.com>
- Tanimoto, K., & Suzuki, K. (2005, April). Corporate social responsibility in Japan: Analysing the participating companies in global reporting initiative, *ResearchGate*, 1-20.
- theguardian (2013, April 16<sup>th</sup>). *Niger Delta Militants threaten retaliation over Islamist Attacks*. [www.theguardian.com/world/](http://www.theguardian.com/world/)
- Thompson, I. (2007). „Mapping the terrain of sustainability accounting”, in J. Unerman, J. Bebbington, & B. O'Dwyer (eds.), *Sustainability accounting and accountability*. Routledge, London. <http://dx.doi.org/10.4324/NOE0415384889.pt1>
- Tieleman, B., and Leroy, P. (2003). *MIRA-PE: Environment and nature report Flanders: Policy evaluation*. VMM.
- Tilt, C. A., & Symes, C. F. (1999, June). Environmental disclosure by Australian mining companies: environmental conscience or commercial reality?. In *Accounting Forum* (Vol. 23, No. 2, pp. 137-154).
- Tolulope, A. O. (2004). Oil exploration and environmental degradation: The Nigerian experience. *International Information Archives, International Society for Environmental Information Science*, EIA04-039, 2, 387-393.



- Toppinen, A., & Korhonen- Kurki, K. (2013). Global Reporting Initiative and social impact in managing corporate responsibility: a case study of three multinationals in the forest industry. *Business ethics: A European review*, 22(2), 202-217.
- Torres-Reyna, O. (2007, December). *Panel data analysis fixed and random effects using Stata (v. 4.2)*. Princeton University, US. <http://dss.priceton.edu/training/>
- Trading Economics (2015). Employment in agriculture (% of total employment) in Nigeria. <http://www.tradingeconomics.com>
- Trotman, K. T. & Bradley, G. W. (1981, January). Associations between social responsibility disclosure and characteristics of companies. *Accounting Organization Society*, 6(4), 355-362.
- Tsafe, B. M. (2012). *Stakeholders' Perceptions on Corporate Governance Constitution and Their Implications on Board Performance* (Doctoral dissertation, Universiti Utara Malaysia).
- Twumasi, Y., and Merem E (2006). GIS and remote sensing applications in the assessment of change within a coastal environment in the Niger Delta region of Nigeria. *International Journal of Environmental Research & Public Health*, 3(1), 98-106. <http://www.ijerph.org>.
- Udayasankar, K. (2008). Corporate social responsibility and firm size. *Journal of Business Ethics*, 83(2), 167–175.
- Ukoli, M. K. (2005). Environmental factors in the management of the oil and gas industry in Nigeria. <http://www.cenbank.org>

- Uwuigbe, U. (2012, March 1<sup>st</sup>). Corporate social responsibility disclosure in Nigeria: A study of listed financial and non-financial firms. *Journal of Management and Sustainability*, 2(1), 160-169.
- Uwuigbe, U. (2012, September). Web-based corporate environmental reporting in Nigeria: a study of listed companies. *Internal Auditing and Risk Management*, Annul VII, 3(2), 57-72.
- Uwuigbe, U., Ranti, U. O. & Sunday, D. P. (2014, February). Corporate governance and capital structure: Evidence from listed firms in Nigeria Stock Exchange. *Advances in Management*, 7(2), 44-49.
- Uzokwe, A. O. (2003, August 11<sup>th</sup>). Devastating effects of pollution in Nigeria (Part I). *Nigeriaworld*. <http://www.survivinginbiafra.com>
- Vakilifard, H. R., Gerayli, M. S., Yanesari, A. M., & Ma'atoofi, A. R., (2011). Effect of corporate governance on capital structure: case of the Iranian listed firms. *European Journal of Economics, Finance, and Administrative Sciences*, 35, 165-172.
- Verardi, V., & Croux, C. (2008). Robust regression in Stata.
- Vidal, J. *Nigeria's agony dwarfs the gulf oil spill*. The US and Europe ignore it. The Observer. (2010, May 30<sup>th</sup>).
- Volconici, V. (2014, September 25). *How global population growth is creating serious environmental problems*. Envifacts.
- Ward, H. (2010, September). The ISO 26000 international guidance standard on social responsibility: implication for public policy and transnational democracy. *Foundation for Democracy and Sustainable Development*.

- West, L. (2008). Top 10 things you can do to reduce global warming. *About.com Online*. Retrieved.
- Wong, L. & Fryxell, G. E. (2004). Stakeholder influences on environmental management practices: a study of fleet operations in Hong Kong (SAR), China. *Transportation Journal*, 43(4), 22–35.
- Woods, M. (2003, June). The GRI's mission is to promote international harmonization in reporting relevant and credible corporate economic, environmental, and social performance information. *The CPA Journal*, 73(6); 60-65.
- Wu, J., & Wokutch, R. E. (2015). Confucian stakeholder theory: An exploration. *Business and Society Review*, 120(1), 1-21.
- Yaffee, R. A. (2002). Robust regression analysis: some popular statistical package options. *ITS Statistics, Social Science and Mapping Group, New York State University*, downloaded on Dec, 23, 2009.
- Yusoff, H. & Darus, F. (2012). Environmental reporting practices in Malaysia: Is it a Mechanism for corporate accountability and shareholder engagement? *Malaysian Accounting Review*. Special Issue, 11(2), 137-159.
- Yusoff, H. (2013, November/December). Environmental practices in Malaysia and Australia. *Journal of Applied Business Research*, 29(6), 1717-1726.
- Zacks (2016). What is the difference between book value & market value per share of common stock? Retrieved from <http://finance.zacks.com/difference-between-book-value>

Zaragosa, M. (2014, November 21<sup>st</sup>). *Business daily program*. BBC (British Broadcasting Corporation) World Service News, UK. 21:00 hrs. Malaysian time.

Zeng, S. X., Xu, X. D., Dong, Z. Y., & Tam, V. M. Y. (2010). Towards corporate environmental information disclosure: An empirical study in China. *Journal of Cleaner Production*. <http://www.doi:10.1016/j.jclepro.2010.04.005>.

Zhang, T., Gao, S. S. and Zhang, J. J. (2007, June). Corporate environmental reporting on the web: An exploratory study of Chinese Listed companies. *Issues in Social and Environmental Accounting*, 1(1), 91-108.

\_\_\_\_ (2016). Experts and their roles – A hired gun? Retrieved from <http://www.beldenlex.com/pdf/Experts%20And%20Their%20Roles%20>



**APPENDIX A**

**LISTED COMPANIES IN THE NIGERIAN STOCK EXCHANGE 2011/2012 & 2012/2013**

S/N	SECTOR	INDUSTRIES	COMPANIES	CAPITALIZATION (₦)
1.	Agriculture	Crop Production	3	22.163 billion
		Fishing/Hunting/Trapping	1	
		Livestock/Animal Specialities	1	
		<b>Sub-total</b>	<b>5</b>	
2.	Alternative Securities Market (ASeM)	Property Management	1	4.072 billion
		Food Products	1	
		Personal/Household Products	1	
		Pharmaceuticals	1	
		Electronic & Electrical Products	1	
		Metals	1	
		Petroleum & Petroleum Product Distribution	4	
		Apparels Retailers	1	
		Food/Drug Retailers & Wholesalers	1	
		<b>Sub-total</b>	<b>12</b>	
3.	Conglomerates	Diversified Industries	6	78.805 billion
<b>Sub-total</b>			<b>6</b>	
4.	Construction/Real Estate	Building Construction	2	129.788 billion
		Building Structure/Completion/Others	2	
		Non-Building/Heavy Construction	2	
		Real Estate Development	2	
		Real Estate investment Trust	2	
<b>Sub-total</b>			<b>10</b>	
5.	Consumer Goods	Automobiles/Auto Parts	1	2.001 trillion
		Beverages Brewers/Distillers	7	
		Beverages Non-alcoholic	1	
		Food Products	11	
		Food Products Diversified	2	
		Household Durables	4	
		Personal/Household Products	2	
<b>Sub-total</b>			<b>28</b>	
6.	Financial Services	Banking	16	2.010 trillion
		Insurance Carrier, Brokers & Services	30	
		Mortgage Carrier, Brokers & Services	4	
		Other Financial Institutions	5	
<b>Sub-total</b>			<b>55</b>	
7.	Healthcare	Healthcare Providers	2	34.555 billion
		Medical Supplies	1	
		Pharmaceuticals	7	
<b>Sub-total</b>			<b>10</b>	
8.	Information & Communication Technology (ICT)	Computer Based Systems	1	62.009 billion
		Computers & Peripherals	1	
		Electronic Communication Services	1	
		IT Services	2	
		Processing Systems	2	
		Telecommunications Carrier	1	
		Telecommunication Services	2	
<b>Sub-total</b>			<b>10</b>	
9.	Industrial Goods	Building Materials	13	1.912 trillion
		Electronic & Electrical Products	3	

		Packaging Containers	6	
		Tools & Machinery	3	
		<b>Sub-total</b>	<b>25</b>	
<b>10.</b>	<b>Memorandum Quotations</b>	Diversified Industries	22	<b>61.700 billion</b>
		<b>Sub-total</b>	<b>22</b>	
<b>11.</b>	<b>Natural Resources</b>	Chemicals	1	<b>8.327 billion</b>
		Metals	2	
		Non-Metallic Mineral Mining	1	
		Paper/Forest Products	2	
		<b>Sub-total</b>	<b>6</b>	
<b>12.</b>	<b>Oil &amp; Gas</b>	Energy Equipment & Services	1	<b>217.9 billion</b>
		Integrated Oil & Gas	1	
		Petroleum & Petroleum Products Distributors	8	
		<b>Sub-total</b>	<b>10</b>	
<b>13.</b>	<b>Services</b>	Advertising	1	<b>53.797 billion</b>
		Apparel Retailers	1	
		Auto Mobile/Auto Parts Retailers	1	
		Courier/Flight/Delivery	2	
		Employment Solutions	1	
		Hospitality	1	
		Hotels/Lodging	2	
		Media/Entertainment	1	
		Printing Publishing	4	
		Road Transportation	1	
		Specialty	2	
		Transport-Related Services	2	
		<b>Sub-total</b>	<b>19</b>	
	<b>Grand Total</b>	63	218	<b>6.596116 trillion</b>

Source: NSE FactBook 2011/2012 & 2012/2013 financial year.

## APPENDIX B

### ENVIRONMENTALLY SENSITIVE LIST OF COMPANIES THAT MAKE UP THE POPULATION OF THE RESEARCH

S/N	COMPANY (POPULATION)	SAMPLE SIZE (82.72%)
<b>AGRICULTURE</b>		
1.	FTN COCOA PROCESSING PLC	4
2.	OKOMU OIL PALM PLC	
3.	PRESCO PLC	
4.	ELLAH LAKES PLC	
5.	LIVESTOCK FEEDS PLC	
<b>CONSTRUCTION/REAL ESTATE</b>		
6.	ARBICO PLC	8
7.	CAPPA & D'ALBERTO PLC	
8.	CONSTAIN (WEST AFRICA) PLC	
9.	G. CAPPA PLC	
10.	JULIUS BERGER NIGERIA PLC	
11.	ROADS NIGERIA PLC	
12.	PINNACLE POINT GROUP LTD	
13.	UACN PROPERTY DEVELOPMENT CO PLC	
14.	SKYE SHELTER FUND	
15.	UNION HOMES REAL INVESTMENT TRUST	
<b>HEALTHCARE</b>		
16.	EKOCORP PLC	8
17.	EVANS MEDICAL PLC	
18.	FIDSON HEALTHCARE PLC	
19.	GLAXO SMITHKLINE CONSUMER (NIG.) PLC	
20.	MAY & BAKER NIGERIA PLC	
21.	MORISON INDUSTRIES PLC	
22.	NEIMETH INTERNATIONAL PHARMACEUTICAL PLC	
23.	NIGERIA-GERMAN CHEMICALS PLC	
24.	PHARMA-DEKO PLC	
25.	UNION DIAGNOSTIC & CLINICAL SERVICES PLC	
<b>INDUSTRIAL GOODS</b>		
26.	ABPLAST PRODUCTS PLC	23
27.	AFRICAN PAINTS (NIGERIA) PLC	
28.	ASHAKA CEMENT PLC	
29.	AUSTIN LAZ & COMPANY PLC	
30.	AVON CROWN CAPS & CONTAINERS (NIGERIA) PLC	

31.	BERGER PAINTS NIGERIA PLC	
32.	BETA GLASS & CO. PLC	
33.	CAP PLC	
34.	CEMENT COMPANY OF NORTHERN NIGERIA PLC	
35.	<i>CHEMICAL AND ALLIED PRODUCTS PLC</i>	
36.	CURTIX PLC	
37.	DANGOTE CEMENT PLC	
38.	DN MEYER PLC	
39.	FIRST ALUMINIUM NIGERIA PLC	
40.	GRIEF NIGERIA PLC	
41.	IPWA PLC	
42.	LAFARGE CEMENT WAPCO NIGERIA PLC	
43.	NIGERIA WIRE INDUSTRIES PLC	
44.	<i>NIGERIAN BOYS MANUFACTURING COMPANY PLC</i>	
45.	NIGERIAN ROPES PLC	
46.	NIGERIAN SEWING MACHINE MANUFACTURING COMPANY PLC	
47.	<i>NIGERIAN WIRE AND CABLE PLC</i>	
48.	PAINTS AND COATINGS MANUFACTURERS NIGERIA PLC	
49.	POLY PRODUCTS NIGERIA PLC	
50.	PORTLAND PAINTS AND PRODUCTS (NIGERIA) PLC	
51.	PREMIER PAINTS PLC	
52.	STOKVIS NIGERIA PLC	
53.	WEST AFRICAN GLASS INDUSTRY PLC	
<b>NATURAL RESOURCES</b>		
54.	ALUMINIUM EXTRUSION INDUSTRIES PLC	<b>5</b>
55.	ALUMINIUM MANUFACTURING COMPANY PLC	
56.	BOC GASES PLC	
57.	<i>HALLMARK PAPER PRODUCT PLC</i>	
58.	MULTIVERSE PLC	
59.	THOMAS WYATT NIGERIA PLC	
<b>OIL &amp; GAS</b>		
60.	ADDAX PETROLEUM NIGERIA PLC	<b>19</b>
61.	AFREN ENERGY RESOURCES NIGERIA PLC	
62.	AFROIL NIGERIA PLC.	
63.	BECO PETRO PRODUCTS NIGERIA PLC.	
64.	CGG VERITAS NIGERIA LIMITED	
65.	CHEVRON NIGERIA PLC	
66.	CONOCO PHILLIPS NIGERIA PLC	
67.	CONOIL NIGERIA PLC	



<b>68.</b>	<b>EQUATOR EXPLORATION NIGERIA LIMITED</b>
<b>69.</b>	<b>ETERNA NIGERIA PLC.</b>
<b>70.</b>	<b>EXXONMOBIL NIGERIA PLC</b>
<b>71.</b>	<b>FORTE OIL NIGERIA PLC</b>
<b>72.</b>	<b>HARDY OIL AND GAS NIGERIA PLC</b>
<b>73.</b>	<b>JAPPAUL OIL &amp; MARITIME SERVICES NIGERIA PLC.</b>
<b>74.</b>	<b>MRS (TEXACO) NIGERIA LIMITED</b>
<b>75.</b>	<b>NIGER DELTA EXPLORATION AND PRODUCTION PLC</b>
<b>76.</b>	<b>OANDO NIGERIA PLC</b>
<b>77.</b>	<b>ORIENTAL ENERGY RESOURCES NIGERIA LIMITED</b>
<b>78.</b>	<b>PETROLEUM GEO SERVICES NIGERIA LIMITED</b>
<b>79.</b>	<b>SHELL PETROLEUM DEVELOPMENT COMPANY NIGERIA PLC</b>
<b>80.</b>	<b>TECHNIP NIGERIA LIMITED</b>
<b>81.</b>	<b>TOTAL NIGERIA PLC</b>

Source: Generated by the Author from FactBook (2011/2012 & 2012/2013).

- Companies found in only one financial year.



## APPENDIX C

### GUIDE TO SAMPLE SELECTION FROM EACH SECTOR

#### Summary of the Population of Environmentally Sensitive Sectors Quoted in the NSE

S/N	Sectors	No. of Quoted Firms	Percentage
<b>Environmentally Sensitive Sectors</b>			
1.	Agriculture	5	6.17
2.	Construction/Real Estate	10	12.35
3.	Healthcare	10	12.34
4.	Industrial Goods	28	34.57
5.	Natural Resources	6	7.41
6.	Oil & Gas	10+12	27.16
<b>Total</b>		<b>81</b>	<b>100</b>

Source: NSE FactBook 2011/12, 2012/13 & 2013/14

#### Summary of Companies in the Sample Size

S/N	Sectors	Total Population	Sample Size ( $67/81 \times 100 = 82.72\%$ )
1.	Agriculture	5	4
2.	Construction/Real Estate	10	8
3.	Healthcare	10	8
4.	Industrial Goods	28	23
5.	Natural Resources	6	5
6.	Oil & Gas	22	19
<b>Total</b>		<b>81</b>	<b>67</b>

Source: Generated by Author from the List that makes up the Population of the research. 82.72% is selected at random from the population of each sector as sample size.

## APPENDIX D

### LIST OF COMPANIES THAT MAKE UP THE SAMPLE SIZE OF THE RESEARCH

S/N	SAMPLE SIZE	
	2011/2012 & 2012/2013 FINANCIAL YEAR	
	CODE	AGRICULTURE (AGS)
1	101	FTN COCOA PROCESSING PLC.
2	102	OKOMU OIL PALM PLC.
3	103	PRESCO PLC.
4	104	LIVESTOCK FEEDS PLC.
CONSTRUCTION/REAL ESTATE (CRE)		
5	201	ARBICO PLC.
6	202	CAPPA & D'ALBERTO PLC.
7	203	CONSTAIN (WEST AFRICA) PLC.
8	204	G. CAPPA PLC.
9	205	JULIUS BERGER NIGERIA PLC.
10	206	ROADS NIGERIA PLC.
11	207	PINNACLE POINT GROUP PLC.
12	208	UACN PROPERTY DEVELOPMENT CO. PLC.
HEALTHCARE (HCS)		
13	301	EVANS MEDICAL PLC.
14	302	FIDSON HEALTHCARE PLC.
15	303	GLAXO SMITHKLINE CONSUMER (NIG) PLC.
16	304	MAY & BAKER NIGERIA PLC.
17	305	MORISON INDUSTRIES PLC.
18	306	NEIMETH INTERNATIONAL PHARMACEUTICAL PLC.
19	307	NIGERIAN GERMAN CHEMICALS PLC.
20	308	PHARMA-DEKO PLC.
INDUSTRIAL GOODS (IGS)		
21	401	AFRICAN PAINTS (NIGERIA) PLC.
22	402	ASHAKA CEMENT PLC.
23	403	NIGERIAN BAG MANUFACTURING COMPANY PLC.
24	404	AVON CROWN CAPS & CONTAINERS (NIGERIA) PLC.
25	405	BERGER PAINTS NIGERIA PLC.
26	406	BETA GLASS & CO. PLC.
27	407	CHEMICAL AND ALLIED PRODUCTS PLC.
28	408	CEMENT COMPANY OF NORTHERN NIGERIA PLC.
29	409	CURTIX PLC.
30	410	DANGOTE CEMENT PLC.
31	411	DN MEYER PLC.

32	412	FIRST ALUMINIUM NIGERIA PLC.
33	413	GRIEF NIGERIA PLC.
34	414	IPWA PLC.
35	415	LAFARGE CEMENT WAPCO NIGERIA PLC.
36	416	NIGERIA WIRE AND CABLE INDUSTRIES PLC.
37	417	NIGERIAN ROPES PLC.
38	418	WEST AFRICAN GLASS INDUSTRY PLC.
39	419	PAINTS AND COATINGS MANUFACTURERS NIGERIA PLC.
40	420	POLY PRODUCTS NIGERIA PLC.
41	421	PORTLAND PAINTS AND PRODUCTS (NIGERIA) PLC.
42	422	PREMIER PAINTS PLC.
43	423	STOKVIS NIGERIA PLC.
<b>NATURAL RESOURCES COMPANIES (NRS)</b>		
44	501	ALUMINIUM EXTRUSION INDUSTRIES PLC.
45	502	ALUMINIUM MANUFACTURING COMPANY PLC.
46	503	BOC GASES PLC.
47	504	MULTIVERSE PLC.
48	505	THOMAS WYATT NIGERIA PLC.
<b>OIL &amp; GAS COMPANIES (OAG)</b>		
49	601	AFREN ENERGY RESOURCES NIGERIA PLC.
50	602	AFROIL NIGERIA PLC.
51	603	BECO PETRO PRODUCTS NIGERIA PLC.
52	604	CHEVRON NIGERIA PLC.
53	605	CONOCO PHILLIPS NIGERIA PLC.
54	606	CONOIL NIGERIA PLC.
55	607	EQUATOR EXPLORATION NIGERIA LIMITED.
56	608	ETERNA NIGERIA PLC.
57	609	EXXONMOBIL NIGERIA PLC.
58	610	FORTE OIL NIGERIA PLC.
59	611	HARDY OIL AND GAS NIGERIA PLC.
60	612	JAPPAUL OIL & MARITIME SERVICES NIGERIA PLC.
61	613	MRS (TEXACO) NIGERIA LIMITED.
62	614	NIGER DELTA EXPLORATION AND PRODUCTION PLC.
63	615	OANDO NIGERIA PLC.
64	616	ORIENTAL ENERGY RESOURCES NIGERIA LIMITED.
65	617	PETROLEUM GEO SERVICES NIGERIA LIMITED.
66	618	SHELL PETROLEUM DEVELOPMENT COMPANY NIGERIA PLC.
67	619	TOTAL NIGERIA PLC.

Source: Generated by the Author from the Population of the research (2015)

**APPENDIX E**

**SUMMARY OF COMPANY CODES FOR THE RELEVANT YEARS**

SECTOR	NO. OF FIRMS	YEAR					
		2009	2010	2011	2012	2013	2014
		COMPANY/FIRM CODES					
AGRICULTURE (AGS)	4	AGS101-AGS104	AGS105-AGS108	AGS109-AGS112	AGS113-AGS116	AGS117-AGS120	AGS121-AGS124
CONSTRUCTION/REAL ESTATE (CRE)	8	CRE201-CRE207	CRE208-CRE214	CRE215-CRE221	CRE222-CRE228	CRE229-CRE235	CRE236-CRE242
HEALTHCARE (HCS)	8	HCS301-HCS307	HCS308-HCS314	HCS315-HCS321	HCS322-HCS328	HCS329-HCS335	HCS336-HCS342
INDUSTRIAL GOODS (IGS)	23	IGS401-IGS418	IGS419-IGS436	IGS437-IGS454	IGS455-IGS472	IGS473-IGS490	IGS491-IGS408
NATURAL RESOURCES (NRS)	5	NRS501-NRS504	NRS505-NRS508	NRS509-NRS512	NRS513-NRS516	NRS517-NRS520	NRS521-NRS524
OIL & GAS (OAG)	19	OAG601-OAG616	OAG617-OAG632	OAG633-OAG648	OAG649-OAG664	OAG665-OAG680	OAG681-OAG696

Universiti Utara Malaysia

**APPENDIX F**

**CODES AND MEASUREMENT INDICES OF THE VARIABLES**

S/N	Code	Variable	Definition	Measurements	Source (Authority)
<b>DEPENDENT VARIABLES</b>					
1.	<b>SD1</b>	Strategy and Analysis	Disclosure of Key Items	Dummy values of 0-5	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
2.	<b>SD2</b>	Organizational Profile	Disclosure of Key Items	Dummy values of 0-5	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
3.	<b>SD3</b>	Governance	Disclosure of Key Items	Dummy values of 0-5	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
4.	<b>SD4</b>	Economic Issues	Disclosure of Key Items	Dummy values of 0-3	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
5.	<b>SD5</b>	Sustainability issues	Disclosure of Key Items	Dummy values of 0-5	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
6.	<b>SD6</b>	Social Issues	Disclosure of Key Items	Dummy values of 0-4	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
7.	<b>SD7</b>	Labour practices and Decent Work	Disclosure of Key Items	Dummy values of 0-2	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
8.	<b>SD8</b>	Human Rights Issues	Disclosure of Key Items	Dummy values of 0-2	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
9.	<b>SD9</b>	Product Responsibility	Disclosure of Key Items	Dummy values of 0-1	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)

10.	<b>SD10</b>	Ethical Policies on Environment	Disclosure of Key Items	Dummy values of 0-1	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
11.	<b>SADI</b>	Simple Average Disclosure Index	The Average Disclosure	Index values of 0-1	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
<b>INDEPENDENT VARIABLES</b>					
<b>Policy Administrators (PA)</b>					
12.	<b>PA1</b>	Security and Exchange Commission (SEC)/Nigerian Stock Exchange (NSE)	Survey (Questionnaire)	Mean value index using Likert Scale	Hossain, Islam, & Andrew, 2006; Enahoro, 2009; Sulaiman and Mokhtar, 2012
13.	<b>PA2 (A)</b>	Department for Petroleum Resources (DPR)	Survey (Questionnaire)	Mean value index using Likert Scale	Hossain, Islam, & Andrew, 2006; Enahoro, 2009; Sulaiman and Mokhtar, 2012
14.	<b>PA2 (B)</b>	National Environmental Standard and Regulations Enforcement Agency (NESREA)	Survey (Questionnaire)	Mean value index using Likert Scale	Hossain, Islam, & Andrew, 2006; Enahoro, 2009; Sulaiman and Mokhtar, 2012
<b>Corporate Performance (CP)</b>					
15.	<b>CP1</b>	Firm Size	Value of Total Assets	$\text{Log}_{10}(\text{Total Assets})$	Monteiro & Aibar-Guzman, 2010
16.	<b>CP2</b>	Financial leverage	Long-term Debt	Total Debt/Total Equity	Andrikopoulos & Kriklani, 2013
17.	<b>CP3</b>	Market-to-Book value	Value of Firm	Market value/Book value	Andrikopoulos & Kriklani, 2013
<b>Board Characteristics (BC)</b>					
18.	<b>BC1</b>	Board Independence	Non-executive membership	Non-executive members/Executive members	Eng and Mak, 2003; Barako, Hancock & Izan, 2006
19.	<b>BC2</b>	Duality	Independence of CEOs	Dummy values (1 for independent & 0 for non-independent)	Barako, Hancock & Izan, 2006
20.	<b>BC3</b>	Environmental Experts	Environmentalists	Dummy values (1 for Experts & 0 for no Experts)	Sulaiman & Mokhtar, 2012
21.	<b>BC4</b>	Board Size	Quantity	Total Number of Members	Cheng & Courtenay, 2006

<b>Corporate Foreign Ownership Concentration (CO)</b>					
22.	<b>CO1 (A)</b>	Foreign ownership concentration	Proportion of Foreign Interests	Percentage/Dummy of 1 for foreign owned (> 50%)	Al-Farooque, 2010; Delgado-Garcia, Quevedo-Puente, & Fuente-Sabate, 2010; Fauzi, & Locke, 2012; and Maquieira, Espinosa & Vieito, 2012 (Percentage). Monteiro & Aibar-Guzman, 2010; Prado-Lorenzo, Gallego-Alvarez, and Garcia-Sanchez, 2009 (Dummy).
23.	<b>CO1 (B)</b>	Foreign ownership concentration	Proportion of Local Interests	Percentage/Dummy of 0 for local interest (> 50%)	Al-Farooque, 2010; Delgado-Garcia, Quevedo-Puente, & Fuente-Sabate, 2010; Fauzi, & Locke, 2012; and Maquieira, Espinosa & Vieito, 2012 (Percentage). Monteiro & Aibar-Guzman, 2010; Prado-Lorenzo, Gallego-Alvarez, and Garcia-Sanchez, 2009 (Dummy).
<b>Control Variable</b>					
24.	<b>IT</b>	Industrial Type	Nature of Firms	Dummy values from 1 to 6	Ahmed, Hassan & Junaini, 2003; Akbas, 2014; Ismail & Ibrahim, 2009; Smith, Amiruddin, & Yahya, 2007



## APPENDIX G

### APPORTIONMENT OF SCORES FOR DEPENDENT VARIABLES

CODE	OBSERVATIONS	KEY ITEMS	MEASUREMENT	TOTAL SCORE
SD1	STRATEGY AND ANALYSIS	Relevance	1	5
		Strategy	1	
		Impact	1	
		Risks	1	
		Opportunities	1	
SD2	ORGANIZATIONAL PROFILE	Name of Firm	1	5
		Address of Firm	1	
		Accounting year-end	1	
		Re-statement	1	
		Auditing & Assurance	1	
SD3	GOVERNANCE	Organizational Structure	1	5
		Mission & Vision	1	
		Agreements	1	
		Industrial Membership	1	
		List of Stakeholders	1	
SD4	ECONOMIC ISSUES	Flow of Capital	1	3
		Economic Impact on Society	1	
		Impact on the Economy	1	
SD5	ENVIRONMENTAL ISSUES	Material Used	1	5
		Energy	1	
		Effluents	1	
		Biodiversity & Wastes	1	
		Environmental Management Department	1	
SD6	SOCIAL ISSUES	Social Policy	1	4
		Organizational Responsibility	1	
		Employment	1	
		Management's Relationship with the Community	1	
SD7	LABOUR PRACTICES AND DECENT WORK	Health & Safety	1	2
		Training & Education	1	
SD8	HUMAN RIGHTS ISSUES	Equal Rights	1	2
		Privileges	1	
SD9	PRODUCT RESPONSIBILITY	Environmental Impact of the Product	1	1
SD10	ETHICAL POLICIES ON ENVIRONMENT	Environmental Code of Conduct	1	1
<b>Total Expected Score</b>			<b>33</b>	<b>33</b>
<b>Simple Average Disclosure Index (SADI) = Total Score/Total</b>			<b>33/33 = 1.00</b>	<b>1</b>

Source:	<b>Expected Score</b>		
	Generated by Author from GRI 4. 1 Point is awarded for disclosure of each Key item and 0 for non-disclosure. (Total Maximum Score = 33, Minimum Score = 0).		



**APPENDIX H**  
**LETTER TO RESPONDENT**

**SCHOOL OF ACCOUNTANCY  
COLLEGE OF BUSINESS  
UNIVERSITI UTARA, MALAYSIA**

28<sup>th</sup> May 2015.

Dear Valued Respondent,

The Determinants of Sustainability disclosure by Environmentally Sensitive Firms in  
Nigeria

This questionnaire is designed strictly for the purpose of academic research only at the Post Graduate level at Universiti Utara, Malaysia. The research is to evaluate the adequacy, sufficiency or otherwise of items being disclosed on environmental reports by companies listed in the Nigerian Stock Exchange and your role as a government enforcement agency. It is hoped that the outcome of the research was beneficial to the Nigerian society, environment, and economy as a whole. Be rest assured that any information given for the purpose of this research was treated in strict confidence and used only for academic purpose.

Thank you for your kind response and participation in this research.

Alhassan Haladu

**(Doctoral Candidate)**

## APPENDIX I

### RESEARCH QUESTIONNAIRE FOR Ph.D. THESIS (DPR & NESREA)

This Questionnaire was prepared to serve government Agencies charged with the responsibility of enforcing environmental standards and guidelines in Nigeria or Agencies considered as environmental policies’ regulatory bodies. The questionnaire targets any of the following in organizations where administered: Chief Executive Officers, or Health, Social, and Environmental Experts in the organization.

A questionnaire was issued for each year starting from 2009 to 2014. With a questionnaire issued to each of the 2 environmental enforcement Agencies of DPR & NESREA, for the sectors under their jurisdiction and covered by the research, it means 6 questionnaires were issued for each year. 1 for DPR and 5 for NESREA. The total questionnaire issue for the entire 6-year period was therefore 36.

**AGENCY:** DPR & NESREA

**PERIOD:** 2009/2010/2011/2012/2013/2014 (Please circle the appropriate year)

**SECTOR COVERED:** Oil & Gas (DPR) and the other 5 Environmentally Sensitive Sectors (NESREA)  
Sustainability disclosure-Compliance

The table below contain items scored 1-5 points with the key indicating the equivalent of the responses to the questions. You are required after careful consideration, to tick the appropriate box based on the performance of the sector in relation to the items outlined.

S/N	Items	Code	Scores					
			0	1	2	3	4	5
1.	Number of registered firms.	REF						
2.	The employment of Environmental experts as part of management team.	EMT						
3.	Companies’ disclosure of environmental information.	EIM						
4.	Compliance with local environmental standards and guidelines.	ESG						
5.	Compliance with GRI sustainability disclosure standards and guidelines.	GED						
6.	Compliance with other international sustainability disclosure standards and guidelines.	IED						
7.	The extent of monitoring by local environmental agencies.	EML						
8.	Lack of obstacles to the enforcement of environmental rules.	OER						
9.	Non-sanctioned for violation of sustainability information disclosure.	NVE						
10.	Level of local investment attracted because of sustainability disclosure.	LIA						
11.	Level of foreign direct investment (FDI) attracted because of sustainability disclosure.	FIA						
12.	Prospects for future improvements	PFI						
<b>Total</b>								
<b>Mean values index = [(total scores obtained/total expected scores (60))*5]</b>								

**KEY FOR MEAN VALUE INDEX**

0.00-0.00 = unacceptable

1.01-2.00 poor

3.01-4.00 = good

0.01-1.00 = very poor

2.01-3.00 = fair

4.01-5.00 = very good



## APPENDIX J

### RESEARCH QUESTIONNAIRE FOR Ph.D. THESIS (NSE)

This Questionnaire was prepared to serve government Agencies charged with the responsibility of enforcing environmental standards and guidelines in Nigeria or Agencies considered as environmental policies’ regulatory bodies. The questionnaire targets any of the following in organizations where administered: Chief Executive Officers, or Health, Social, and Environmental Experts in the organization.

A questionnaire was issued for each year starting from 2009 to 2014. With a questionnaire issued to the environmental enforcement Agency of NSE for the sectors under their jurisdiction and covered by the research, it means 6 questionnaires were issued for each year. The total questionnaire issue for the entire 6-year period is therefore 36.

**AGENCY:** NSE

**PERIOD:** 2009/2010/2011/2012/2013/2014 (Please circle the appropriate year)

**SECTOR COVERED:** All Six Environmentally Sensitive Sectors

Sustainability disclosure-Compliance

The table below contain items scored 1-5 points with the key indicating the equivalent of the responses to the questions. You are required after careful examination of your records, to tick the appropriate box based on the performance of the sector in relation to the items outlined.

S/N	Items	Code	Scores					
			0	1	2	3	4	5
1.	Number of registered firms.	REF						
2.	Sectors non-environmental impact.	SEI						
3.	Firms environmental policies and strategies.	FPS						
4.	The employment of Environmental experts as part of management team.	EMT						
5.	The strength of Environmental Standards and Guidelines for the sector.	SSG						
6.	Companies’ disclosure of environmental information.	EIM						
7.	Compliance with GRI sustainability disclosure standards and guidelines.	GED						
8.	Compliance with other international sustainability disclosure standards and guidelines.	IED						
9.	Lack of obstacles to the enforcement of environmental rules.	OER						
<b>Total</b>								
<b>Mean values index = [(total scores obtained/total expected (45))*5]</b>								

**KEY FOR MEAN VALUE INDEX**

0.00-0.00 = unacceptable

0.01-1.00 = very poor

1.01-2.00 poor

2.01-3.00 = fair

3.01-4.00 = good

4.01-5.00 = very good

## APPENDIX K

### RESULTS OF DATA ANALYSIS (STATA13, SPSS22 & EXCEL 2013)

#### DATA ANALYSED THROUGH SPSS22

##### Missing Data

Item	N	Missing	
		Count	Percent
SD1	337	65	16.2
SD2	337	65	16.2
SD3	337	65	16.2
SD4	335	67	16.7
SD5	337	65	16.2
SD6	337	65	16.2
SD7	337	65	16.2
SD8	336	66	16.4
SD9	336	66	16.4
SD10	336	66	16.4
SADI	337	65	16.2
CP1	365	37	9.2
CP2	362	40	10.0
CP3	350	52	12.9
BC1	348	54	13.4
BC2	353	49	12.2
BC3	352	50	12.4
BC4	348	54	13.4
PA1	141	261	64.9
PA2	332	70	17.4
CO	402	0	.0
IT	402	0	.0

##### Replaced Missing Values

	Result Variable	N of Replaced Missing Values	Creating Function
1	SD1_1	65	SMEAN(SD1)
2	SD2_1	65	SMEAN(SD2)
3	SD3_1	65	SMEAN(SD3)
4	SD4_1	67	SMEAN(SD4)
5	SD5_1	65	SMEAN(SD5)
6	SD6_1	65	SMEAN(SD6)
7	SD7_1	65	SMEAN(SD7)
8	SD8_1	66	SMEAN(SD8)
9	SD9_1	66	SMEAN(SD9)
10	SD10_1	66	SMEAN(SD10)
11	SADI_1	65	SMEAN (SADI)
12	CP1_1	37	SMEAN(CP2)
13	CP2_1	40	SMEAN(CP3)
14	CP3_1	52	SMEAN(CP4)
15	BC1_1	54	SMEAN(BC1)
16	BC2_1	49	SMEAN(BC2)
17	BC3_1	50	SMEAN(BC3)
18	BC4_1	54	SMEAN(BC4)
19	PA1_1	261	SMEAN(PA1)
20	PA2_1	70	SMEAN(PA2)
21	CO_1	0	SMEAN(CO)

### Validity Statistics for SADI

#### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.883
Approx. Chi-Square	3745.207
Bartlett's Test of Sphericity Df	45
Sig.	.000

#### Communalities

	Extraction
SD1	.834
SD2	.872
SD3	.723
SD4	.086
SD5	.881
SD6	.827
SD7	.751
SD8	.829
SD9	.757
SD10	.773

### Reliability Statistics for SADI

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.896	.917	10

#### ANOVA with Friedman's Test

	Sum of Squares	Df	Mean Square	Friedman's Chi-Square	Sig
Between People	2817.230	401	7.026	2401.551	.000
Between Items	5214.512 <sup>a</sup>	9	579.390		
Within People	2641.288	3609	.732		
Residual	7855.800	3618	2.171		
Total	10673.030	4019	2.656		



**Table 5.8 Jonckheere-Terpstra Test on Sub-Items Disclosure**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Number of Levels in YEAR	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
N	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402
Observed J-T Statistic	37419.500	34237.000	36682.500	36682.500	39094.500	.000	.000	.000	39161.500	38826.500	35912.000	34036.000	36984.000	36615.500	36012.500	.000	33567.000	33567.000	35744.500	36749.500	36012.500	36280.500	35878.500
Mean J-T Statistic	33667.500	33667.500	33667.500	33667.500	33667.500	.000	.000	.000	33667.500	33667.500	33667.500	33667.500	33667.500	33667.500	33667.500	.000	33667.500	33667.500	33667.500	33667.500	33667.500	33667.500	33667.500
Std. Deviation of J-T Statistic	1056.100	695.171	1086.817	1121.940	1070.105	.000	.000	.000	1074.489	1143.386	1147.619	875.970	1120.673	1113.878	850.918	.000	114.424	114.424	783.308	1107.883	1005.937	949.844	1051.142
Std. J-T Statistic	3.553	.819	2.774	2.687	5.071	.000	.000	.000	5.113	4.512	1.956	.421	2.959	2.647	2.756	.000	-.878	-.878	2.652	2.782	2.331	2.751	2.103
Asymp. Sig. (2-tailed)	.000	.413	.006	.007	.000	1.000	1.000	1.000	.000	.000	.050	.674	.003	.008	.006	1.000	.380	.380	.008	.005	.020	.006	.035

**Jonckheere-Terpstra Test of Dependent variable Items with SD4 (Pre and Post IFRS)**

	SD1	SD2	SD3	SD4	SD5	SD6	SD7	SD8	SD9	SD10	SADI
Number of Levels in YEAR	6	6	6	6	6	6	6	6	6	6	6
N	389	389	389	389	389	389	389	389	389	389	389
Std. J-T Statistic	5.301	4.472	2.105	1.153	3.708	1.821	2.629	3.571	4.622	2.967	4.086
Asymp. Sig. (2-tailed)	.000	.000	.035	.249	.000	.069	.009	.000	.000	.003	.000

J-T= SD1 SD2 SD3 SD4 SD5 SD6 SD7 SD8 SD9 SD10 SADI BY YEAR (2009 2014) SPSS22

**Jonckheere-Terpstra Test of Dependent variable without SD4 (Pre and Post IFRS)**

	SD1	SD2	SD3	SD5	SD6	SD7	SD8	SD9	SD10	SADI
Number of Levels in YEAR	6	6	6	6	6	6	6	6	6	6
N	389	389	389	389	389	389	389	389	389	389
Std. J-T Statistic	5.301	4.472	2.105	3.708	1.821	2.629	3.571	4.622	2.967	4.137
Asymp. Sig. (2-tailed)	.000	.000	.035	.000	.069	.009	.000	.000	.003	.000

J-T= SD1 SD2 SD3 SD5 SD6 SD7 SD8 SD9 SD10 SADI BY YEAR (2009 2014) SPSS22

### Independent Sample Test (Mean Group Statistics) for Pre & Post IFRS

	PERIOD	N	Mean
SD1	1	201	2.55
	2	188	3.47
SD2	1	201	2.84
	2	188	3.57
SD3	1	201	3.25
	2	188	3.58
SD5	1	201	1.98
	2	188	2.60
SD6	1	201	1.80
	2	188	2.08
SD7	1	201	.94
	2	188	1.13
SD8	1	201	.89
	2	188	1.13
SD9	1	201	.20
	2	188	.41
SD10	1	201	.29
	2	188	.43
SADI	1	201	.491542
	2	188	.613834

### NSE

#### Communalities

	Initial	Extraction
A	1.000	.801
C	1.000	.969
D	1.000	.982
E	1.000	.924
F	1.000	.965
H	1.000	.903
I	1.000	.879
K	1.000	.986
B	1.000	.982
<b>AVG</b>	<b>1.0000</b>	<b>.932</b>
<b>KMO</b>		

Extraction Method: Principal Component Analysis.

#### Reliability Statistics

Cronbach's Alpha	N of Items
.637	9

### DPR/NESREA

#### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.696
Approx. Chi-Square	6207.588
Bartlett's Test of Sphericity Df	66
Sig.	.000

#### Reliability Statistics

Cronbach's Alpha	N of Items
.742	12

**Independent Sample Test (Pre & Post IFRS) Significance**

		Levene's Test for Equality of Variances	
		F	Sig.
SD1	Equal variances assumed	4.510	.034
	Equal variances not assumed		
SD2	Equal variances assumed	4.253	.040
	Equal variances not assumed		
SD3	Equal variances assumed	.796	.373
	Equal variances not assumed		
SD5	Equal variances assumed	1.531	.217
	Equal variances not assumed		
SD6	Equal variances assumed	.303	.583
	Equal variances not assumed		
SD7	Equal variances assumed	.987	.321
	Equal variances not assumed		
SD8	Equal variances assumed	1.786	.182
	Equal variances not assumed		
SD9	Equal variances assumed	76.139	.000
	Equal variances not assumed		
SD10	Equal variances assumed	29.018	.000
	Equal variances not assumed		
SADI	Equal variances assumed	4.370	.037
	Equal variances not assumed		

**New Validity Statistics for SADI**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.881
Bartlett's Test of Sphericity	Approx. Chi-Square	3538.473
	Df	36
	Sig.	.000

## New Reliability Statistics for SADI

Cronbach's Alpha	N of Items
.905	9

### CONVERSION TO PANEL DATA

```
. xtset id year
      panel variable:  id (unbalanced)
      time variable:  year, 2009 to 2014, but with gaps
      delta: 1 unit
```

### DESCRIPTIVE STATISTICS OF ENVIRONMENTAL DISCLOSURE SUB-ITEMS

Sub-Items	Obs	Mean	Std. Dev.	Min	Max
relevance	389	.7043702	.456913	0	1
strategy	389	.9023136	.2972725	0	1
impact	389	.6606684	.4740923	0	1
risks	389	.6041131	.4896701	0	1
opportunities	389	.3161954	.465589	0	1
nameoffirm	389	1	0	1	1
addressoffirm	389	1	0	1	1
accounting	389	1	0	1	1
restatement	389	.3213368	.4675912	0	1
auditingas	389	.4473008	.4978554	0	1
organizational	389	.5141388	.5004437	0	1
missionvision	389	.8277635	.3780721	0	1
agreements	389	.3907455	.4885458	0	1
industrial	389	.6246787	.4848293	0	1
listofstakeholders	389	.8303342	.3758223	0	1
flowofcash	389	1	0	1	1
economicimpact	389	.9974293	.050702	0	1
impactontheenvironment	389	.9974293	.050702	0	1
materialused	389	.874036	.3322361	0	1
energy	389	.6452442	.4790554	0	1
effluents	389	.2467866	.4316967	0	1
biodiversity	389	.218509	.4137668	0	1
environmental	389	.3007712	.459184	0	1
socialpolicy	389	.8637532	.3434922	0	1
organizational	389	.2699229	.4444912	0	1
employment	389	.596401	.4912507	0	1
relationships	389	.2236504	.417227	0	1
healthsafety	389	.7532134	.4316967	0	1
traininganddevelopment	389	.2904884	.4545724	0	1
equalrights	389	.3084833	.462462	0	1
privileges	389	.7069409	.4557515	0	1
productenvironment	389	.3059126	.4613863	0	1
codeofconduct	389	.3573265	.4798293	0	1

Source: Computed using StataSE13

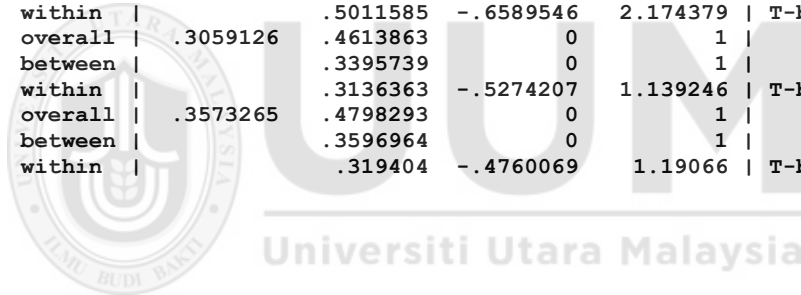
## APPENDIX L

### DESCRIPTIVE STATISTICS

#### DEPENDENT VARIABLE ITEMS

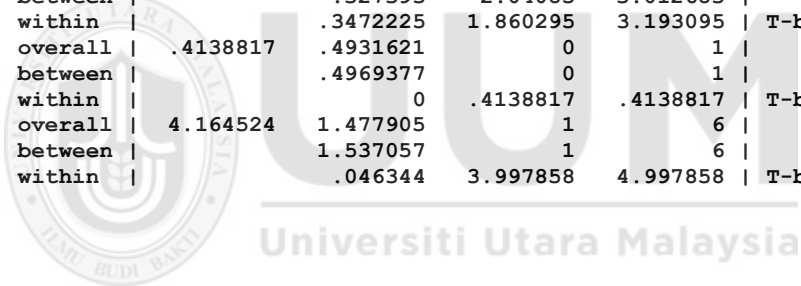
. xtsum sd1 sd2 sd3 sd5 sd6 sd7 sd8 sd9 sd10 sadi cp1 cp2 cp3 bc1 bc2 bc3  
bc4 pal pa2 co it

Variable		Mean	Std. Dev.	Min	Max	Observations
sd1	overall	2.997429	1.588455	0	5	N = 389
	between		1.067011	.25	5	n = 67
	within		1.194651	-.835904	5.997429	T-bar = 5.80597
sd2	overall	3.192802	1.596178	0	5	N = 389
	between		1.064808	.25	5	n = 67
	within		1.208201	-.8071979	5.859469	T-bar = 5.80597
sd3	overall	3.411311	1.649891	0	5	N = 389
	between		1.00721	1	5	n = 67
	within		1.317344	-.7553556	6.411311	T-bar = 5.80597
sd5	overall	2.277635	1.5697	0	5	N = 389
	between		1.125243	0	5	n = 67
	within		1.108775	-1.389032	5.444302	T-bar = 5.80597
sd6	overall	1.935733	1.295704	0	4	N = 389
	between		.9863041	0	4	n = 67
	within		.8496007	-.8976007	4.435733	T-bar = 5.80597
sd7	overall	1.033419	.7225484	0	2	N = 389
	between		.5146846	0	2	n = 67
	within		.5133526	-.6332476	2.200086	T-bar = 5.80597
sd8	overall	1.007712	.7232816	0	2	N = 389
	between		.5253257	0	2	n = 67
	within		.5011585	-.6589546	2.174379	T-bar = 5.80597
sd9	overall	.3059126	.4613863	0	1	N = 389
	between		.3395739	0	1	n = 67
	within		.3136363	-.5274207	1.139246	T-bar = 5.80597
sd10	overall	.3573265	.4798293	0	1	N = 389
	between		.3596964	0	1	n = 67
	within		.319404	-.4760069	1.19066	T-bar = 5.80597



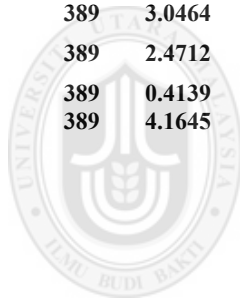
**DEPENDENT AND INDEPENDENT VARIABLES**

Variable		Mean	Std. Dev.	Min	Max	Observations
sadi	overall	.5506447	.2760662	0	1	N = 389
	between	.1988304	.066675	.96666		n = 67
	within	.1954284	-.1049219	1.056195		T-bar = 5.80597
cp1	overall	6.658138	.8075194	4.7997	9.4982	N = 389
	between	.6699075	5.236033	8.287017		n = 67
	within	.4429669	4.718871	8.297237		T-bar = 5.80597
cp2	overall	4.06776	10.40374	-17.4103	91.4788	N = 389
	between	6.435974	-4.068083	28.43003		n = 67
	within	8.208847	-24.36227	70.04118		T-bar = 5.80597
cp3	overall	7.191919	11.99558	0	81.2952	N = 389
	between	10.81937	.1	55.7712		n = 67
	within	5.677215	-30.23598	40.40282		T-bar = 5.80597
bc1	overall	2.007696	1.387329	.2857	10	N = 389
	between	.9215568	.66665	6.074533		n = 67
	within	1.039336	-2.343237	7.787096		T-bar = 5.80597
bc2	overall	.7172237	.4509286	0	1	N = 389
	between	.2736807	0	1		n = 67
	within	.3617802	-.1161097	1.550557		T-bar = 5.80597
bc3	overall	.1131105	.3171358	0	1	N = 389
	between	.2485447	0	1		n = 67
	within	.1998711	-.7202228	.9464439		T-bar = 5.80597
bc4	overall	9.208226	2.466337	2	18	N = 389
	between	2.04763	5	15.5		n = 67
	within	1.40446	3.808226	17.54156		T-bar = 5.80597
pa1	overall	3.046435	.1026895	2.9088	3.2724	N = 389
	between	.0434645	2.98152	3.0906		n = 67
	within	.0931905	2.937355	3.228235		T-bar = 5.80597
pa2	overall	2.471162	.4785324	1.9159	3.332	N = 389
	between	.327393	2.04085	3.012683		n = 67
	within	.3472225	1.860295	3.193095		T-bar = 5.80597
co	overall	.4138817	.4931621	0	1	N = 389
	between	.4969377	0	1		n = 67
	within	0	.4138817	.4138817		T-bar = 5.80597
it	overall	4.164524	1.477905	1	6	N = 389
	between	1.537057	1	6		n = 67
	within	.046344	3.997858	4.997858		T-bar = 5.80597



INTERPRETATION OF STANDARD DEVIATION (3 TIMES LOWER AND UPPER LIMITS)

VARIABLE	OBS.	MEAN	STD. DEV.	MIN.	MAX.	L. L.	U. L.	RMKS. 1	RMKS. 2
SD1	389	2.9974	1.5885	0	5	-1.7681	7.7629	G	G
SD2	389	3.1928	1.5962	0	5	-1.5958	7.9814	G	G
SD3	389	3.4113	1.6499	0	5	-1.5384	8.361	G	G
SD5	389	2.2776	1.5697	0	5	-2.4315	6.9867	G	G
SD6	389	1.9357	1.2957	0	4	-1.9514	5.8228	G	G
SD7	389	1.0334	0.7225	0	2	-1.1341	3.2009	G	G
SD8	389	1.0077	0.7233	0	2	-1.1622	3.1776	G	G
SD9	389	0.3059	0.4614	0	1	-1.0783	1.6901	G	G
SD10	389	0.3573	0.4798	0	1	-1.0821	1.7967	G	G
SADI	389	0.5506	0.2761	0	1	-0.2777	1.3789	G	G
CP1	389	6.6581	0.8075	4.7997	9.4982	4.2356	9.0806	G	B
CP2	389	4.0678	10.4037	-17.4103	91.4788	-27.1433	35.2789	B	B
CP3	389	7.1919	11.9956	0	81.2952	-28.7949	43.1787	B	B
BC1	389	2.0077	1.3873	0.2857	10	-2.1542	6.1696	G	B
BC2	389	0.7172	0.4509	0	1	-0.6355	2.0699	G	B
BC3	389	0.1131	0.3171	0	1	-0.8382	1.0644	G	B
BC4	389	9.2082	2.4663	2	18	1.8093	16.6071	G	B
PA1	389	3.0464	0.1027	2.9088	3.2724	2.7383	3.3545	G	G
PA2	389	2.4712	0.4785	1.9159	3.332	1.0357	3.9067	G	G
CO	389	0.4139	0.4932	0	1	-1.0657	1.8935	G	G
IT	389	4.1645	1.4779	1	6	-0.2692	8.5982	G	G



Universiti Utara Malaysia



## CORRELATION

```
pwcorr simpleavgdisclindex firmsize financialleverage mbvratio
boardcomposition duality environmentalexpert boardsize nse dprnesrea ownersh
> ipconcentration industrialtype, star (0.05)
```

Variables	simple~x	firmsize	financ~e	mbvratio	boardc~n	duality	enviro~t
simpleavgd~x	1.0000						
firmsize	0.2120*	1.0000					
financiall~e	0.1414*	0.3216*	1.0000				
mbvratio	0.0864	0.1279*	0.2731*	1.0000			
boardcompo~n	-0.1736*	0.0975	0.0587	-0.0950	1.0000		
duality	-0.0434	0.0374	0.0789	-0.0198	-0.1041*	1.0000	
environmen~t	0.2131*	0.1811*	0.0979	0.1805*	0.0113	-0.0101	1.0000
boardsize	0.1376*	0.1797*	0.0638	0.1393*	0.1499*	0.0902	0.2631*
nse	0.1510*	-0.0316	0.0297	-0.0101	-0.0600	-0.0326	0.2041*
dprnesrea	-0.1121*	-0.1519*	-0.1470*	-0.1608*	-0.0731	-0.0963	-0.0712
ownershipc~n	0.0501	-0.0426	-0.0208	0.1264*	-0.0178	-0.0055	0.1448*
industrial~e	0.2335*	0.2326*	0.1764*	0.1440*	-0.0250	0.0081	0.2131*

Variables	boards~e	nse	dprnes~a	owners~n	indust~e
boardsize	1.0000				
nse	-0.0024	1.0000			
dprnesrea	0.0746	0.1640*	1.0000		
ownershipc~n	0.0328	0.0889	-0.0611	1.0000	
industrial~e	-0.1240*	0.2209*	-0.5754*	-0.0123	1.0000

## FIXED EFFECTS REGRESSION

```
. xtreg sadi cp1 cp2 cp3 bc1 bc2 bc3 bc4 pa1 pa2 co it, fe
```

```
note: co omitted because of collinearity
```

```
note: it omitted because of collinearity
```

```
Fixed-effects (within) regression
```

```
389
```

```
Group variable: id
```

```
67
```

```
R-sq: within = 0.0852
```

```
4
```

```
between = 0.0186
```

```
5.8
```

```
overall = 0.0467
```

```
6
```

```
F(9,313)
```

```
3.24
```

```
corr(u_i, Xb) = -0.1231
```

```
0.0009
```

```
Prob > F
```

sadi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
cp1	.0287462	.0257237	1.12	0.265	-.0218669
cp2	.0008035	.0014043	0.57	0.568	-.0019596
cp3	-.0051594	.0019239	-2.68	0.008	-.0089449
bc1	-.0335284	.0108802	-3.08	0.002	-.0549361

```

bc2 | -.0980788 .0312615 -3.14 0.002 -.159588 -
.0365695
bc3 | .0078449 .0560712 0.14 0.889 -.1024793
.118169
bc4 | .0022946 .0079884 0.29 0.774 -.0134231
.0180123
pa1 | .2493215 .1338881 1.86 0.064 -.014113
.5127559
pa2 | -.0405215 .0365804 -1.11 0.269 -.1124961
.0314531
co | 0 (omitted)
it | 0 (omitted)
_cons | -.1506774 .4343605 -0.35 0.729 -1.005313
.7039582
-----
sigma_u | .20009685
sigma_e | .20811615
rho | .48036268 (fraction of variance due to u_i)
-----
F test that all u_i=0: F(66, 313) = 3.91 Prob > F =
0.0000
. est store fixed

```

**RANDOM EFFECTS REGRESSION**

```

. xtreg sadi cp1 cp2 cp3 bc1 bc2 bc3 bc4 pa1 pa2 co it, re
Random-effects GLS regression              Number of obs   =
389
Group variable: id                        Number of groups  =
67
R-sq:  within = 0.0692                    Obs per group: min =
4
      between = 0.2574                               avg =
5.8
      overall = 0.1571                               max =
6
                                           Wald chi2(11)      =
45.11
corr(u_i, X) = 0 (assumed)                Prob > chi2       =
0.0000

```

```

-----
sadi |      Coef.   Std. Err.      z    P>|z|     [95% Conf.
Interval]
-----+-----
cp1 |   .0401548   .0206028     1.95   0.051    -.0002259
.0805355
cp2 |   .0016098   .0013083     1.23   0.219    -.0009545
.004174
cp3 |  -.0026803   .0014445    -1.86   0.064    -.0055115
.0001508
bc1 |  -.0376429   .0099131    -3.80   0.000    -.0570723
.0182135
bc2 |  -.089821    .028922     -3.11   0.002    -.146507
.0331349
bc3 |   .0533835   .0485855     1.10   0.272    -.0418424
.1486094
bc4 |   .0109156   .0065722     1.66   0.097    -.0019657
.0237968
pa1 |   .2234239   .1286065     1.74   0.082    -.0286403
.4754881
pa2 |  -.0364916   .0345078    -1.06   0.290    -.1041256
.0311425
co |   .0249852   .0429686     0.58   0.561    -.0592317
.1092022
it |   .0023911   .0012819     1.87   0.062    -.0001214
.0049036
_cons | -.3558728   .3978538    -0.89   0.371    -1.135652
.4239062

```

```
-----+-----
sigma_u | .14512155
sigma_e | .20811615
rho | .32716195 (fraction of variance due to u_i)
-----+-----
```

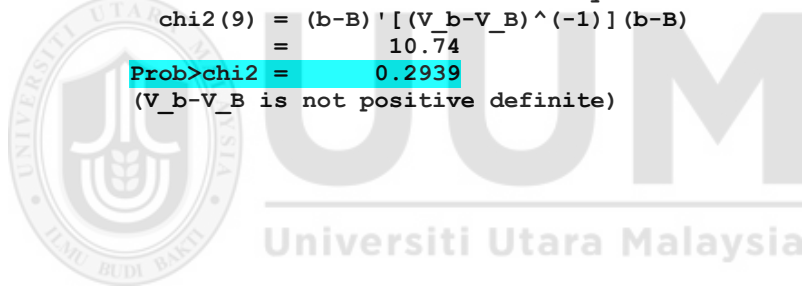
```
. est store random
```

**HAUSMAN TEST (FIXED AND RANDOM EFFECTS)**

```
. hausman fixed
```

V_B)	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-
	fixed	random	Difference	S.E.
cp1	.0287462	.0401548	-.0114086	.0154024
cp2	.0008035	.0016098	-.0008063	.0005103
cp3	-.0051594	-.0026803	-.0024791	.0012708
bc1	-.0335284	-.0376429	.0041145	.0044843
bc2	-.0980788	-.089821	-.0082578	.0118659
bc3	.0078449	.0533835	-.0455387	.0279898
bc4	.0022946	.0109156	-.008621	.004541
pa1	.2493215	.2234239	.0258976	.0372342
pa2	-.0405215	-.0364916	-.0040299	.0121383

```
-----+-----
b = consistent under Ho and Ha; obtained from
xtreg
B = inconsistent under Ha, efficient under Ho; obtained from
xtreg
Test: Ho: difference in coefficients not systematic
chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 10.74
Prob>chi2 = 0.2939
(V_b-V_B is not positive definite)
```



**POOLED OLS REGRESSION**

```
. reg sadi cp1 cp2 cp3 bc1 bc2 bc3 bc4 pa1 pa2 co it
Source |          SS          df          MS          Number of obs =
-----+-----
389
7.23
Model |  5.14959221      11   .468144746   Prob > F =
0.0000
Residual | 24.4208819     377   .064776875   R-squared =
0.1741
-----+-----
0.1500
Total | 29.5704741     388   .076212562   Root MSE =
.25451

-----+-----
sadi |          Coef.      Std. Err.      t    P>|t|      [95% Conf.
Interval]
-----+-----
cp1 |  .0487846   .0176516      2.76   0.006   .0140768
.0834925
cp2 |  .0020043   .00137      1.46   0.144   -.0006895
.004698
cp3 | -.0013211   .0011866     -1.11   0.266   -.0036542
.0010119
bc1 | -.0433044   .0097705     -4.43   0.000   -.0625158
.024093
bc2 | -.0560088   .0294767     -1.90   0.058   -.1139682
.0019506
bc3 |  .0857884   .0449538      1.91   0.057   -.0026031
.17418
bc4 |  .0168646   .0057571      2.93   0.004   .0055446
.0281846
pa1 |  .2444338   .1422095      1.72   0.086   -.0351894
.5240571
pa2 | -.0259917   .0368774     -0.70   0.481   -.0985029
.0465195
co |  .016525   .0269903      0.61   0.541   -.0365454
.0695955
it |  .0021081   .0009697      2.17   0.030   .0002014
.0040148
_cons | -.5708135   .4291538     -1.33   0.184   -1.414648
.2730214

-----+-----
. est store ols
```

**BREUSCH & PAGAN LAGRANGIAN MULTIPLIER TEST**

```
. xttest0
Breusch and Pagan Lagrangian multiplier test for random effects
sadi[id,t] = Xb + u[id] + e[id,t]
Estimated results:
-----+-----
          |          Var          sd = sqrt(Var)
sadi |  .0762126   .2760662
e |  .0433123   .2081161
u |  .0210603   .1451215
Test:  Var(u) = 0
chibar2(01) = 77.06
Prob > chibar2 = 0.0000
```

**TABULATION OF FIXED, RANDOM AND POOLED OLS**

```
. estimates table fixed random ols
-----+-----
Variable |          fixed          random          ols
-----+-----
cp1 |  .02874624   .04015479   .04878463**
cp2 |  .00080351   .00160976   .00200425
cp3 | -.00515943**  -.00268034  -.00132114
```

bc1		- .03352845**	- .03764294***	- .04330441***
bc2		- .09807876**	- .08982099**	- .05600878
bc3		.00784486	.05338352	.08578843
bc4		.00229458	.01091556	.01686461**
pa1		.24932145	.2234239	.24443382
pa2		- .04052152	- .03649158	- .0259917
co		(omitted)	.02498525	.01652504
it		(omitted)	.00239108	.00210813*
_cons		- .15067739	- .35587284	- .57081352
-----				
N		389	389	389
-----				
Legend: * p<0.05; ** p<0.01; *** p<0.001				



## APPENDIX M

### DIAGNOSTICS TESTS

#### GOODNESS OF MODEL TEST

```
. predict e
(option xb assumed; fitted values)
```

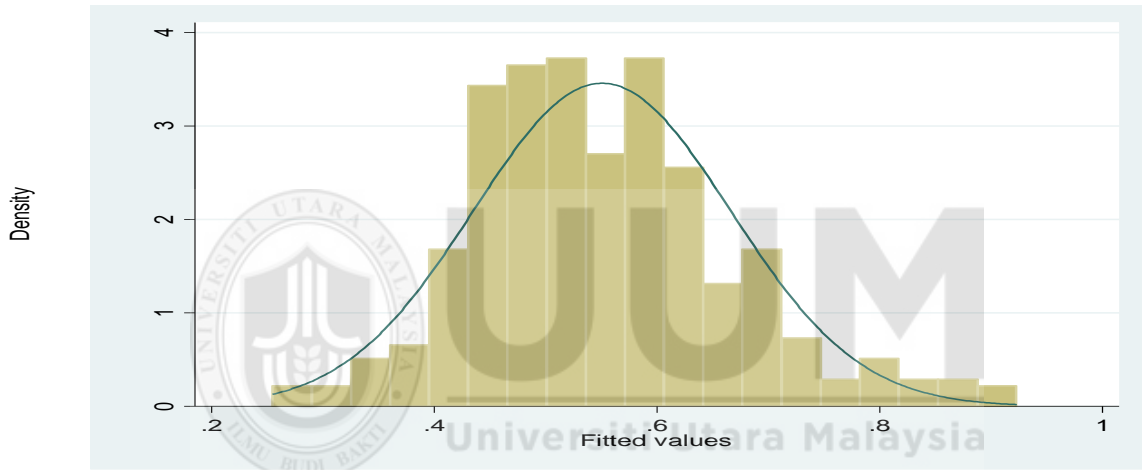
#### SHAPIRO WILK NORMALITY TEST

```
. swilk e
```

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
e	389	0.96958	8.168	4.991	0.00000

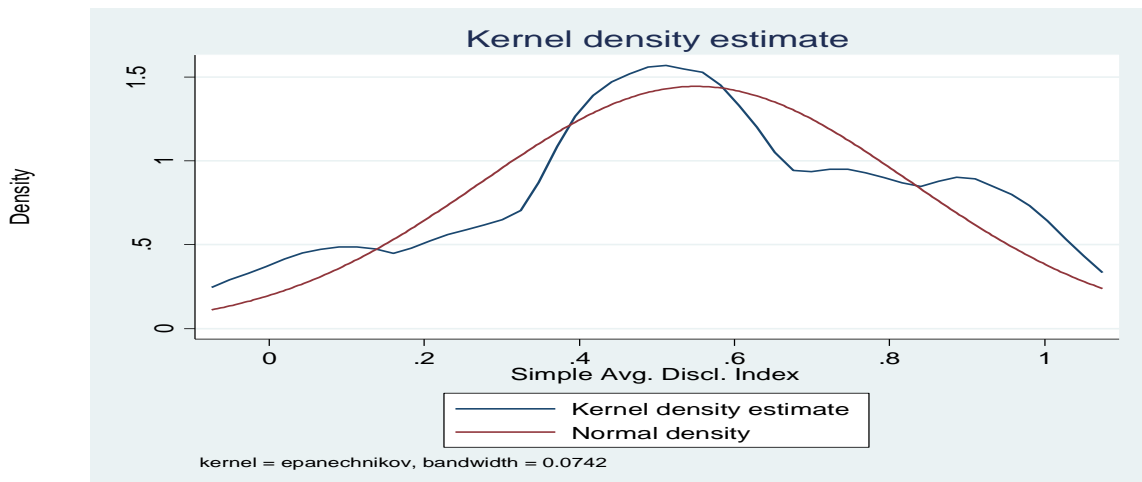
#### HISTOGRAM

```
. histogram e, kdensity normal
(bin=19, start=.18283038, width=.03825416)
```



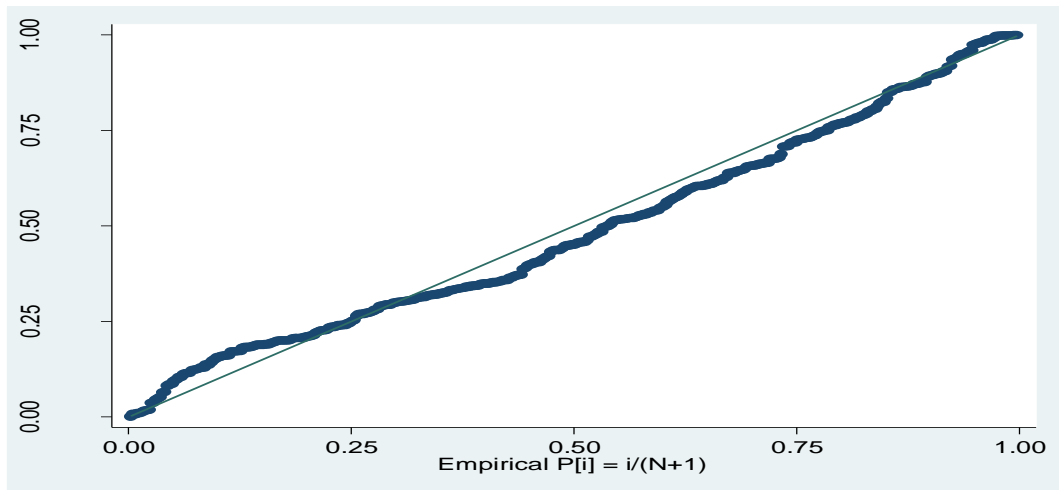
#### KDENSITY ESTIMATES

```
kdensity sadi, nor
```



## P-PLOT GRAPH

. pnorm e



## MULTICOLLINEARITY TEST

. vif

Variable	VIF	1/VIF
it	2.03	0.491767
pa2	1.87	0.536098
pa1	1.28	0.782851
bc3	1.22	0.821420
cp1	1.22	0.821704
cp2	1.22	0.821849
cp3	1.21	0.824083
bc4	1.21	0.828088
bc1	1.10	0.908655
co	1.06	0.942308
bc2	1.06	0.944962

Mean VIF = 1.32

## AUTOCORRELATION TEST

. xtserial cp1 cp2 cp3 bc1 bc2 bc3 bc4 pa1 pa2 co it

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

F( 1, 66) = 4.744

Prob > F = 0.0330

## MODEL SPECIFICATION TEST

. linktest

Source	SS	df	MS	Number of obs =	
389					
Model	5.15616761	2	2.5780838	F( 2, 386) =	
Residual	24.4143065	386	.063249499	Prob > F =	
Total	29.5704741	388	.076212562	R-squared =	
				Adj R-squared =	
				Root MSE =	
sadi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_hat	.7793643	.6932149	1.12	0.262	-.5835854
2.142314					

hatsq		.1895272	.587816	0.32	0.747	-.9661947
1.345249						
_cons		.0615164	.2007199	0.31	0.759	-.3331248
.4561576						

-----

**OMITTED VARIABLE TEST**

```
. ovtest
Ramsey RESET test using powers of the fitted values of sadi
Ho: model has no omitted variables
F(3, 374) = 1.41
Prob > F = 0.2402
```

**HETEROSKEDASTICITY TEST:**

```
. hettest
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of sadi
chi2(1) = 2.51
Prob > chi2 = 0.1131
```

OR

```
. estat imtest
Cameron & Trivedi's decomposition of IM-test
```

Source	chi2	df	p
Heteroskedasticity	118.57	74	0.0008
Skewness	20.33	11	0.0410
Kurtosis	8.90	1	0.0028
<b>Total</b>	<b>147.81</b>	<b>86</b>	<b>0.0000</b>

**\*\*\*CO (DUMMY) & CONTROL VARIABLE**

```
Cameron & Trivedi's decomposition of IM-test
```

Source	chi2	df	p
Heteroskedasticity	116.33	74	0.0012
Skewness	20.47	11	0.0393
Kurtosis	8.69	1	0.0032
<b>Total</b>	<b>145.49</b>	<b>86</b>	<b>0.0001</b>

OR

```
. xttest3
Modified Wald test for group wise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (67) = 1.8e+05
Prob>chi2 = 0.0000
```





## APPENDIX N

### ROBUST REGRESSIONS

#### RANDOM EFFECTS REGRESSION (ROBUST)

```
. xtreg simpleavgdisclindex firmsize financialleverage mbvratio boardcomposition
duality environmentalexpert boardsize nse dprnesrea ownershi
> pconcentration industrialtype, re robust
```

```
Random-effects GLS regression                Number of obs   =       389
Group variable: id                          Number of groups =        67
R-sq:  within = 0.0701                      Obs per group:  min =         4
                    between = 0.2408                avg =         5.8
                    overall = 0.1499                 max =         6
                                                Wald chi2(11)   =       35.45
                                                Prob > chi2     =       0.0002
corr(u_i, X) = 0 (assumed)                  (Std. Err. adjusted for 67 clusters in
id)
```

		Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
simpleavgdisclindex						
firmsize		.0519938	.0354899	1.47	0.143	-.0175651
financialleverage		.000316	.0031559	0.10	0.920	-.0058694
mbvratio		-.0025848	.0027353	-0.94	0.345	-.007946
boardcomposition		-.0444301	.0161125	-2.76	0.006	-.0760101
duality		-.082373	.0351256	-2.35	0.019	-.1512179
environmentalexpert		.055921	.0730112	0.77	0.444	-.0871782
boardsize		.0082181	.009612	0.85	0.393	-.0106211
nse		.239816	.1319663	1.82	0.069	-.0188332
dprnesrea		-.0384019	.0392799	-0.98	0.328	-.1153892
ownershipconcentration		.0204833	.0444643	0.46	0.645	-.0666652
industrialtype		.0272394	.0145303	1.87	0.061	-.0012394
_cons		-.4736918	.398819	-1.19	0.235	-1.255363

#### CORPORATE PERFORMANCE ESTIMATION (ROBUST)

```
. xtreg simpleavgdisclindex firmsize financialleverage mbvratio industrialtype, re
robust
```

```
Random-effects GLS regression                Number of obs   =       389
Group variable: id                          Number of groups =        67
R-sq:  within = 0.0246                      Obs per group:  min =         4
                    between = 0.1085                avg =         5.8
                    overall = 0.0676                 max =         6
                                                Wald chi2(4)    =       12.65
                                                Prob > chi2     =       0.0131
corr(u_i, X) = 0 (assumed)                  (Std. Err. adjusted for 67 clusters in id)
```

		Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
simpleavgdiscli~x						
firmsize		.0572666	.0342447	1.67	0.094	-.0098517
financialleverage		-.0023885	.0028871	-0.83	0.408	-.0080472
mbvratio		-.0017193	.002783	-0.62	0.537	-.0071738
industrialtype		.0395111	.015136	2.61	0.009	.0098451
_cons		.0229316	.2185804	0.10	0.916	-.4054781

**BOARD COMPOSITION ESTIMATION REGRESSION (ROBUST)**

. xtreg simpleavgdisclindex boardcomposition duality environmentalexpert boardsize industrialtype, re robust

```

Random-effects GLS regression                Number of obs   =   389
Group variable: id                          Number of groups =    67
R-sq:  within = 0.0450                      Obs per group:  min =    4
        between = 0.2176                    avg =           5.8
        overall = 0.1243                    max =           6
                                           Wald chi2(5)    =   25.86
                                           Prob > chi2     =   0.0001
corr(u_i, X) = 0 (assumed)
                                           (Std. Err. adjusted for 67 clusters in id)

```

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
simpleavgdisclindex						
boardcomposition	-.0415386	.0158294	-2.62	0.009	-.0725637	-.0105135
duality	-.0823591	.034582	-2.38	0.017	-.1501385	-.0145797
environmentalexpert	.0775974	.0687717	1.13	0.259	-.0571926	.2123874
boardsize	.0090566	.0098984	0.91	0.360	-.010344	.0284572
industrialtype	.0406882	.0136726	2.98	0.003	.0138904	.0674859
_cons	.4285024	.1106573	3.87	0.000	.211618	.6453867

**POLICY ADMINISTRATORS ESTIMATION REGRESSION (ROBUST)**

. xtreg simpleavgdisclindex nse dprnesrea industrialtype, re robust

```

Random-effects GLS regression                Number of obs   =   389
Group variable: id                          Number of groups =    67
R-sq:  within = 0.0096                      Obs per group:  min =    4
        between = 0.1184                    avg =           5.8
        overall = 0.0643                    max =           6
                                           Wald chi2(3)    =   12.48
                                           Prob > chi2     =   0.0059
corr(u_i, X) = 0 (assumed)
                                           (Std. Err. adjusted for 67 clusters in id)

```

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
simpleavgdis~x						
nse	.2100859	.1456805	1.44	0.149	-.0754425	.4956144
dprnesrea	.0050497	.0393864	0.13	0.898	-.0721462	.0822456
industrialtype	.0409344	.0140884	2.91	0.004	.0133216	.0685471
_cons	-.2735852	.3980458	-0.69	0.492	-1.053741	.5065702

**CORPORATE FOREIGN OWNERSHIP CONCENTRATION ESTIMATION (ROBUST)**

. xtreg simpleavgdisclindex ownershipconcentration industrialtype, re robust

```

Random-effects GLS regression                Number of obs   =   389
Group variable: id                          Number of groups =    67
R-sq:  within = 0.0018                      Obs per group:  min =    4
        between = 0.1138                    avg =           5.8
        overall = 0.0573                    max =           6
                                           Wald chi2(2)    =   10.70
                                           Prob > chi2     =   0.0047
corr(u_i, X) = 0 (assumed)
                                           (Std. Err. adjusted for 67 clusters in id)

```

id)

--

| Robust

simpleavgdisclindex Interval]	Coef.	Std. Err.	z	P> z	[95% Conf.
ownershipconcentration .1261573	.0323497	.0478619	0.68	0.499	-.0614579
.0711223 industrialtype	.0434383	.0141248	3.08	0.002	.0157543
.4730004 _cons	.3548665	.0602735	5.89	0.000	.2367325

### ENVIRONMENTAL POLICY ADMINISTRATOR REPORTING AS A MODERATOR (ROBUST)

```
. xtreg environmentalreporting firmsizelog10 financialleverage mbvratio
boardcomposition duality environmentalexpert boardsize ownershipconce
> ntration industrialtype, re robust
```

```
Random-effects GLS regression           Number of obs   =       389
Group variable: id                     Number of groups =        67
R-sq:  within = 0.0484                 Obs per group:  min =         4
      between = 0.1981                   avg =         5.8
      overall = 0.1132                   max =         6
                                         Wald chi2(9)    =       25.22
corr(u_i, X) = 0 (assumed)             Prob > chi2     =       0.0027
                                         (Std. Err. adjusted for 67 clusters in
id)
```

environmentalreporting Interval]	Coef.	Robust Std. Err.	z	P> z	[95% Conf.
.713391 firmsizelog10	.1079956	.3088809	0.35	0.727	-.4973998
.0010626 financialleverage	.0001316	.000475	0.28	0.782	-.0007994
.0004741 mbvratio	-.0002699	.0003796	-0.71	0.477	-.0010138
.0896286 boardcomposition	-.2240251	.0685709	-3.27	0.001	-.3584215
.0011785 duality	-.0081688	.0047691	-1.71	0.087	-.0175162
.0336756 environmentalexpert	.0134688	.0103098	1.31	0.191	-.0067381
.39264 boardsize	.0198307	.1902123	0.10	0.917	-.3529786
.0105087 ownershipconcentration	-.0008982	.0058199	-0.15	0.877	-.012305
.0070889 industrialtype	.0029787	.0020971	1.42	0.155	-.0011315
1.163663 _cons	.5304019	.3230984	1.64	0.101	-.1028594

### RATIO OF ENVIRONMENTAL EXPERTS TO NON-ENVIRONMENTAL EXPERTS

ITEMS	NUM.	%
EXPERT	44	11.31
NON-EXPERT	345	88.69

<b>TOTAL</b>	<b>389</b>	<b>100</b>
--------------	------------	------------

## CORPORATE OWNERSHIP

OWNERSHIP	NUMBER	%AGE
LOCAL	228	59
FOREIGN	161	41
TOTAL	389	100

### MODERATING EFFECTS OF ENVIRONMENTAL POLICY ADMINISTRATORS

```
. su environmentalreporting firmsizelog10 financialleverage mbvratio boardcomposition
duality environmentalexpert boardsize ownershipconcentr
> ation industrialtype, det
```

#### Sustainability reporting

95%	1	1	Skewness	-.2035478
99%	1	1	Kurtosis	2.37412

#### Firm Size (Log10)

95%	1.8414	1.8567	Skewness	.0248215
99%	1.8567	1.8567	Kurtosis	2.154394

#### Financial leverage

95%	131.0678	145.0553	Skewness	2.053351
99%	145.0553	145.0553	Kurtosis	6.360493

#### MBV Ratio

95%	238.3808	277.3158	Skewness	2.359187
99%	277.3158	277.3158	Kurtosis	8.25558

#### Board Composition

95%	1.5376	1.5738	Skewness	-.1410562
99%	1.5738	1.5738	Kurtosis	2.461716

#### Duality

95%	9.995	10.631	Skewness	-.534923
99%	10.631	10.631	Kurtosis	1.853249

#### Environmental Expert

95%	7.4963	7.7461	Skewness	2.525906
99%	7.7461	7.7461	Kurtosis	7.542784

#### Board Size

95%	2.0352	2.1004	Skewness	-.0351334
99%	2.1004	2.1004	Kurtosis	2.330767

#### Foreign ownership concentration

95%	9.5407	10.631	Skewness	.5681462
99%	10.631	10.631	Kurtosis	1.624496

#### Industrial Type

95%	42.5242	46.4768	Skewness	-.4688524
99%	46.4768	46.4768	Kurtosis	2.780665



## APPENDIX O

### GLOBAL REPORTING INITIATIVE 4 (GRI-4 or G4) SUSTAINABILITY DISCLOSURE INDICATORS

#### SCORE CARD FOR STANDARD DISCLOSURES

S/N	Code	Disclosure Indicator	Weight Scores	Actual Scores
<b>General Standard Disclosures (GSD)</b>				
1.	<b>G4-01 – G4-02</b>	Strategy & Analysis	2	
2.	<b>G4- 03– G4-16</b>	Organizational Profile	14	
3.	<b>G4-17 – G4-23</b>	Identified Material Aspects and Boundaries	7	
4.	<b>G4-24 – G4-27</b>	Stakeholders Engagement	4	
5.	<b>G4-28 – G4-33</b>	Report Profile	6	
6.	<b>G4-34 – G4-55</b>	Governance	22	
7.	<b>G4-56 – G4-58</b>	Ethics and Integrity	3	
<b>Sub-Total</b>			<b>58</b>	
<b>Specific Standard Disclosure (SSD)</b>				
<b>Specific Standard Disclosure (Economic Category)</b>				
8.	<b>G4-EC01 – G4-EC04</b>	Economic Performance	4	
9.	<b>G4-EC05 – G4-EC06</b>	Market Presence	2	
10.	<b>G4-EC07 – G4-EC08</b>	Indirect Economic Impacts	2	
11.	<b>G4-EC09</b>	Procurement Practices	1	
<b>Sub-Total</b>			<b>9</b>	
<b>Specific Standard Disclosure (Environmental Category)</b>				
12.	<b>G4-EN01 – G4-EN02</b>	Materials	2	
13.	<b>G4-EN03 – G4-EN07</b>	Energy	5	
14.	<b>G4-EN08 – G4-EN10</b>	Water	3	
15.	<b>G4-EN11 – G4-EN14</b>	Biodiversity	4	
16.	<b>G4-EN15 – G4-EN21</b>	Emissions	7	
17.	<b>G4-EN22 – G4-EN26</b>	Effluents and Wastes	5	
18.	<b>G4-EN27 - G4-EN28</b>	Products and Services	2	
19.	<b>G4-EN29</b>	Compliance	1	
20.	<b>G4-EN30</b>	Transport	1	
21.	<b>G4-EN31</b>	Overall	1	
22.	<b>G4-EN32 – G4-EN33</b>	Supplier Environmental Assessment	2	
23.	<b>G4-EN34</b>	Environmental Guidance Mechanism	1	
<b>Sub-Total</b>			<b>34</b>	
<b>Specific Standard Disclosure (Social Category – Labour &amp; Decent Work)</b>				
24.	<b>G4-LA01 – G4-LA03</b>	Employment	3	
25.	<b>G4-LA04</b>	Labour Management Relations	1	
26.	<b>G4-LA05 – G4-LA08</b>	Occupational Health & Safety	4	
27.	<b>G4-LA09 – G4-LA11</b>	Training & Education	3	
28.	<b>G4-LA12</b>	Biodiversity & Equal Opportunity	1	
29.	<b>G4-LA13</b>	Equal Remuneration for Women & Men	1	
30.	<b>G4-LA14 – G4-LA15</b>	Supplier Assessment for Labour Practices	2	
31.	<b>G4-LA16</b>	Labour Practices Grievance Mechanism	1	
<b>Sub-Total</b>			<b>16</b>	
<b>Specific Standard Disclosure (Social Category – Human Rights)</b>				
32.	<b>G4-HR01 - G4-HR02</b>	Investment	2	
33.	<b>G4-HR03</b>	Non-discrimination	1	
34.	<b>G4-HR04 - G4-HR05</b>	Freedom of Association & Collective Bargaining	2	
35.	<b>G4-HR06</b>	Forced or Compulsory Labour	1	
36.	<b>G4-HR07</b>	Security Practices	1	
37.	<b>G4-HR08</b>	Local Rights	1	

38.	<b>G4-HR09</b>	Assessments	<b>1</b>	
39.	<b>G4-HR10 - G4-HR11</b>	Suppliers Human Rights Assessment	<b>2</b>	
40.	<b>G4-HR12</b>	Human Rights Grievance Mechanism	<b>1</b>	
<b>Sub-Total</b>			<b>12</b>	
<b>Specific Standard Disclosure (Social Category – Society)</b>				
41.	<b>G4-SO01 – G4-SO02</b>	Local Community	<b>2</b>	
42.	<b>G4-SO03 – G4-SO05</b>	Anti-Corruption	<b>3</b>	
43.	<b>G4-SO06</b>	Public Policy	<b>1</b>	
44.	<b>G4-SO07</b>	Anti-Competitive Behaviour	<b>1</b>	
45.	<b>G4-SO08</b>	Compliance	<b>1</b>	
46.	<b>G4-SO09 – G4-SO10</b>	Supplier Assessment for Impact on Society	<b>2</b>	
47.	<b>G4-SO11</b>	Grievance Mechanism for Impacts on Society	<b>1</b>	
<b>Sub-Total</b>			<b>11</b>	
<b>Specific Standard Disclosure (Social Category – Product Responsibility)</b>				
48.	<b>G4-PR01 – G4-PR02</b>	Customer Health & Safety	<b>2</b>	
49.	<b>G4-PR03 – G4-PR05</b>	Product & Service Labelling	<b>3</b>	
50.	<b>G4-PR06 - G4-PR07</b>	Marketing Communications	<b>2</b>	
51.	<b>G4-PR08</b>	Customer Privacy	<b>1</b>	
52.	<b>G4-PR09</b>	Compliance	<b>1</b>	
<b>Sub-Total</b>			<b>9</b>	
<b>Grand Total Score</b>			<b>149</b>	



**UUM**  
Universiti Utara Malaysia



## APPENDIX P

### KEY CONTACTS OF POLICY ADMINISTRATORS

1. **NESREA**  
No. 4 Oro Ago Street,  
Off Mohammed Buhari Way,  
Garki – Abuja  
**Web:** [nesrea.gov.ng](http://nesrea.gov.ng)  
**Email:** [dg@nesrea.gov.ng](mailto:dg@nesrea.gov.ng) or  
**GSM:** +2348096508800, +2348174634670 (Abuja), +2348034524121 (Kano) and +2347093683207 (Laboratory).
2. **NSE**  
Muktar El-Yakub Place  
Plot 1129, Zakariya Maimalari Street,  
Beside Metro Plaza.  
Central Business District,  
Abuja.  
**Web:** [nse.com.ng](http://nse.com.ng)  
**Email:** [nseabuja@nse.com.ng](mailto:nseabuja@nse.com.ng) or [contactcenter@nse.com.ng](mailto:contactcenter@nse.com.ng)  
**GSM:** +2348181527899 (Abuja) and +234962325067 or +2348037140739 (Kano)
3. **DPR**  
No. 7 Kofo Abayomi Street,  
Victoria Island,  
Lagos State,  
Nigeria.  
Mr. Isah Tafida,  
Department of Petroleum Resources,  
146, Shehu Kazaure Road, Hotoro GRA,  
Kano State.  
Department of Petroleum Resources,  
24 Gobarau Road, GRA  
Kaduna State.  
**Web:** [dprnigeria.com](http://dprnigeria.com)  
**Email:** [bassey.d.e@dpr.gov.ng](mailto:bassey.d.e@dpr.gov.ng) or [info@dpr.gov.ng](mailto:info@dpr.gov.ng) or [dorothybassey@hotmail.com](mailto:dorothybassey@hotmail.com)  
**GSM:** +2348058298815 (Mr. Ladan, Abuja), +2348056099175 (Mrs. Dorothy Bassey – Public Affairs Unit) and +2348150618402 (Kano)
4. **NNPC**  
NNPC Towers, Central Business District,  
Herbert Macaulay Way,  
P. M. B. 190, Garki, Abuja.  
**Web:** [nnpcgroup.com](http://nnpcgroup.com)  
**Email:** [webmaster@nnpcgroup.com](mailto:webmaster@nnpcgroup.com)  
**GSM:** +234946081000
5. Shelterbelt Research Station, Kano.  
Forestry Research Institute of Nigeria.  
**Email:** [abdul67ng@yahoo.com](mailto:abdul67ng@yahoo.com)  
**GSM:** +2348162152807, +2348098081243