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ENVIRONMENTAL POLICY PERFORMANCE AND SUSTAINABLE DEVELOPMENT IN SUB-SAHARAN

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ABSTRACT

This paper analysed comparatively, the performance indexes of both Nigeria and Rwanda's environmental policies over the period of eight years, applying SWOT analysis. The methodology of the paper was based on the cross-cultural design (what is normally termed the comparative study design). The secondary data collected were analysed using the qualitative approach. Thus textual analysis and graphical presentation of data were utilized. The findings of the study include: (1) that there is a strong relationship or association between environmental sustainability and sustainable socio-economic development; (2) that most sub-Saharan African nations are yet to fully integrate their environmental sustainability plan into their national development priorities; (3) that though SSAs have least scores in terms of carbon emissions intensity, however the sub-region remains vulnerable to environmental menace, especially climate change and its attendant effects; and (4) that between Rwanda and Nigeria, albeit, Nigeria recorded high Environmental Performance Index (EPI) score than Rwanda during the period under consideration, but ironically Rwanda's environmental performance index since 2016 has been more sustainable than Nigeria's especially in the aspects of hygiene and water quality. This may explain a more socially and economically progressive Rwanda in recent years. This paper concludes that SSA must brace up to the challenge of environmental threats and adopt proactive rather than reactive measures to stem the tide of environmental degradation so as to enable her assail towards sustainable economic development.

KEYWORDS: Environment, policy performance, sustainable development, sub-Saharan Africa, comparative, Nigeria, Rwanda

1. INTRODUCTION

One of the most challenging problems the world is facing today is the unsustainable use of the resources of our environment. The preponderant effect of this has been the sustained loss of environmental resources, unpredictable and often harmful weather/climatic condition due to climate change, together with its attendant consequences: vulnerable human socio-economic condition occasioned by declining socio-economic activities (and often leading to low production and unsustainable consumption); specifically those human economic activities that are dependent on the environment and its stability. It is argued by experts at African Economic Commission that: Africa's contribution to global environmental degradation is low and insignificant; but the continent is highly vulnerable to climatic hazards. Carbon dioxide emissions in metric tonnes of Co_2 per capita in Central, East, Southern and West Africa in 2011 were much lower than the global and developing country average of 0.87 metric tonnes of CO_2 per capita compared with 4.68 globally and 3.36 percent for developing regions as a whole; they figures were slightly higher in North Africa, which averaged 2.79 tonnes. Similarly, Africa's consumption of ozone depleting substance is low. In Central, East, Southern and West Africa, the rate of consumption was 1, 371 tons of ozone-depletion potential in 2013, compared with 1,661 tons in Southern Asia and 17,675 tons in Eastern Asia (ECA, 2016; ECA et al., 2015).

Although, the data or statistics above might initially seem to curious minds as sort of good news for Africa, particularly sub-Saharan Africa, however, caution must be exercised as the continent remains vulnerable to and endangered by debilitating climatic conditions attributed, mostly, to human-induced climate change. Nicolas Stern (2006) in Todaro and Smith (2009) observed that "poorest developing countries will be hit earliest and hardest by climate change, even though they have contributed little to causing the problem". Nearly all over Africa, the impact of global warming is being felt with much negative impacts. African countries and regions are hotspots of current and future climatic impacts, which have already hit an impressive but precarious level (Schellnhuber et al., 2013 in ECA 2016; Turco et al., 2015).

The need for a proactive environmental policy to address the scourging effects of environmental degradation, climate change and its attendant consequences on Africans' socio-economic activities has been contemplated for over three decades by various national and international stakeholders (both governmental and non-governmental stakeholders). In response to the threat that climate change posed to the environment and humanity globally, the World Meteorological Organisation (WMO) and the United Nations Environmental Programme (UNEP) in 1988 instituted the Intergovernmental Panel on Climate Change (IPCC). In April, 2007 the IPCC in its *fourth assessment report* "concluded that the developing world, particularly the poorest countries (sub-Saharan Africa inclusive) can expect major consequences from global warming, including larger and more severe heat waves, hurricanes, floods from heavy rains, prolong droughts, losses of valuable species, and crops and fishing losses" (IPCC, 2007; Todaro & Smith, 2009). Evidently, in years 2012 and 2017 in Nigeria, one of the sub-Saharan African countries had been ravaged by excessive floods resulting from excessive rain falls in flood-prone zones of the country. On the other hand "Rwanda's environment has been changing rapidly, as is evident in the extent of land degradation, declining water quality and quantity, increasingly unreliable climate, slums and a growing population of urban poor; and a shortage of wood and biomass resources, among others" (Rwanda Environmental Management Authority (REMA), 2010).

The IPCC in its report mentioned above identified four world zones that are highly vulnerable to greenhouse gas-induced climate change: sub-Saharan Africa (SSA) because of drying, Asian mega-deltas because of flooding, small islands due to multiple sensitivities, and the Arctic. It is further warned that SSA will be hit particularly hard. The IPCC report concluded that by 2020: Agricultural production, including access to food, in many countries and regions in Africa is projected to be severely compromised by climate variability and change. The area suitable for agriculture, the length of the growing seasons and yield potential, particularly along the margins of the semi-arid and arid areas, are expected to decrease. This would further adversely affect food security and exacerbate malnutrition in the continent. In some countries, yield from rain fed agriculture could be reduced by up to 50% by 2020 (IPCC, 2007 in Todaro and Smith, 2009).Seeing these frightening statistics, it is obvious for African states and policymakers, as part of their national governance or development strategy, to formulate and implement pro-active environmental policies in order to achieve sustainable socio-economic development. Interestingly, this research paper makes an attempt to comparatively examine Nigeria and Rwanda's environmental policies, with the view to determining performance indexes of these policies, in terms of their *strengths, weaknesses, opportunities and threats*.

The contribution of this paper to knowledge takes specific dimensions. Firstly, this study attempts to analyse through comparison whether or not the performance of environmental policy would contribute to sustainable development, specifically in SSA. Evidence from the Republic of Rwanda showed that an effective environmental policy has the potential to make development sustainable. This is because a healthy environmental practice could mitigate the effect of environmental degradation, conserves natural resources and life supporting species. Though these findings may not be new, however hardly is there any specific study devoted to the analysis of the case of Nigeria and Rwanda other than this one. In the above sense, this study has further enriched existing literature on environmental policy. This study made a SWOT analysis of environmental policies of Nigeria and Rwanda; hence those interested can easily and readily obtain basic literature from it as foundation for their studies.Secondly, this research output has immense benefits for environmental analysts and policymakers, particularly those who have SSA in mind. The findings and recommendation of this paper would go a long way in helping policymakers or implementers to make and execute better and effective environment policy that would promote sustainable development in SSA.This research paper therefore is a modest effort to analyse, through comparative examination, the performance levels of the environmental policies of both Nigeria and Rwanda using parameter such as the Environmental Performance Index (EPI) and the strengths, weaknesses, opportunities and threats analysis (i.e. SWOT). The gap this paper has got to fill is essentially that no previous studies or research works in the literature have been devoted to a comparative examination, adopting SWOT analysis, of environmental policy performance with a specific focus on Nigeria and Rwanda. This study therefore, undertakes to fill this gap in the literature.

1.1 Statement of the problem

It is widely believed that a moderate and sustainable use of the environment and its resources is a sine-qua-non for sustainable development. The UN in its 2030 Agenda for Sustainable Development recognises environmental sustainability as one of its three core pillars or dimensions to sustainable development. The other two are the economic and the social dimensions (UN, 2015). The sustainability of human life and development is believed to be strongly related to environmental sustainability. Most of life support resources are dependent on the environment for survival. Therefore environmental well-being is synonymous with human socio-economic well-being and other biodiversity, and vice-versa. The environment is the life supporting system for human existence and survival; and it provides much of the physical milieu and the raw materials required for socio-economic progress. Humanity has no choice but to interact with it… If the environment is properly managed, it can be a productive resource to meet our socio-economic and aesthetic needs, not only for today, but also for the future generations. Conversely, if poorly managed, the environment could easily become hazardous and threatening to human survival (Federal Ministry of Environment –FME, 2016).

However, in recent years it is observed by people, around the globe, and their governments that the manner in which the environment and its resources were exploited by humans portend danger to their continuous existence, except something urgent is done to address these ugly trends. "In an increasingly uncertain world, effective environmental stewardship must assume, acknowledge and address the likelihood of future uncertainty. But a host of menacing variables including climate change, uncertain socio-economic and political dispensation, and insatiable consumer behaviour, the national and global economy, demography and culture often obscure a clear road-map to a sustainable future. Further frustrating is that traditional environmental policy planning methods fail to unmask what could befall our society, environment and economy under competing and interlinked natural resource uses" (REMA, 2015). "Development will be meaningful if it does not increase a country's vulnerability to environmental impacts. If a nation's environmental foundations are depleted, its economy may well decline, its social fabric may deteriorate, and its political structure may even become de-stabilised… Unfortunately, human intervention, natural disaster and climate change are putting unprecedented pressure and impact on the quality of our environmental conditions. Climate change, in particular, is currently one of the most critical issues facing mankind today" (FME, 2016). The background above necessitated the impetus for African countries, particularly Nigeria and Rwanda, to formulate and execute national environmental policies in order to address several of the environmental challenges facing them.

1.2 Objectives of the study

The main aim of this research paper is to compare analytically Nigeria and Rwanda's environmental policies and their performance indicators with the view to determining areas of their strengths and weaknesses, opportunities and threats. However, to give this research paper its focus, the following specific research objectives were formulated: a) To establish the relationship between environmental policy performance and sustainable development in Nigeria and Rwanda.b) To determine, through comparative examination, the strengths, weaknesses, opportunities and threats in Nigeria and Rwanda's national environmental policies.

1.3 Research questions

Based on the research objectives formulated above, the following research questions are formulated to guide the study:What is the relationship between environmental policy performance and sustainable development in Nigeria and Rwanda?ii) What are the strengths, weaknesses, opportunities and threats to Nigeria and Rwanda's environmental policies?

2. METHODS OF THE STUDY

2.1 Research design

In this paper, the cross-cultural design model was employed. Cross-cultural design model entails collection and analysis of data involving two or more nations (Bryman & Bell, 2015). This design is chosen because this paper involves a comparative study of two separate countries - Nigeria and Rwanda.

2.2 Sources of data

The data for this study were collected from documented sources. Official data (statistics) were collected from the Nigeria Federal Ministry of Environment (FME), and Rwanda Environmental Management Authority (REMA). The list also included data obtained from sources including the UN Economic Commission for Africa: Economic Report on Africa; the UN Environmental Programme (UNEP), the Yale University's 2018 Environmental Performance Index Report; others include online and offline articles, and books.

2.3 Technique of data Analysis

The data collected from the secondary sources were analysed qualitatively, according to themes.

3. CONCEPTUAL CLARIFICATIONS

3.1 Environment

In the context of this study environment refers to the physical/biological surrounding and the socio-economic milieu characterising it.

3.2 Environmental Policy

In the context of this study environmental policy refers to government strategic plan or course of action chosen to combat the challenges posed by environment conditions to man and other life supporting species or biodiversity.

3.3 Performance

As implied in this study, performance is defined as the actual outcome, output or impact of environmental policy as measured against policy goals (objectives).

3.4 Sustainable Development

By sustainable development it is meant the ability of natural resources use to meet the needs of the present generation without compromising the ability of the future generation to meet its own needs (Brundtland Report, 1987).

3.5 Comparative Analysis

This is defined as a method of analysis or investigation involving the act of comparing and contrasting a phenomenon by examining some observable similarities and differences characterising it in order to explain, interpret and predict its behaviour.

4. LITERATURE REVIEW

The stability of the environment and biodiversity are critical for human survival and sustainability. Our environment is home to all life-supporting species. Therefore its survival is synonymous to human survival. Conversely, harm to the environment is equally harm to human and other life species. Since human survival is dependent on the survival of the environment and the biodiversity, it is thus apparent to state that environmental conservation is not only necessary but indispensable and critical to the existence of human and other life species. Corroborating this view, Wonah (2017) argues thus:It should be noted that the achievement of individual potential through the state is a function of the carrying capacity of the earth (environment). The environment provides the required resources necessary for the actualisation of individual potential. As man applies his labour power on nature in order to derive value for his survival, resources are not only depleted, but there is also concomitant distortion of the ecosystem and destruction of the biodiversity. The implication is that with excessive and indiscriminate exploitation of natural resources, available natural resources may go into extinction and the environment, in what may be considered as reprisal attack, and becomes hostile to man.

No doubt, today our environment is witnessing a monumental hemorrhage, occasioned by natural and human induced calamities. Studies have indicated that our environment today is in serious danger; human induced activities have altered the course of nature and these have brought devastating consequences: climate change and its attendant consequences, global warming, distortion of the ecosystem and loss of biodiversity, polluted air and contaminated water bodies, ozone layer depletion, heightened spate of natural disasters among a range of other issues (IPCC, 2007; Ogwola & Ameh, 2013; FME, 2016; Yale University 2018; UNEP, 2018).As several studies have shown, although Africa's contribution to global environmental degradation is low and insignificant compared to other regions of the world, however, the continent is highly vulnerable to environmental hazards (ECA, 2016). Recent environmentally induced disasters in Nigeria and other sub-Saharan African countries is a testimony to this fact. Flood waters occasioned by global warming; climate change induced droughts in the South Sudan and Senegal, volcanic eruption and mudslides in east and central Africa are impairing the regions' ability to sustain economic development. This view is further corroborated by the analysis in the study below.Natural disasters occurring in African countries undermined the economic survival of poor communities. Many populations in countries throughout the continent have suffered under the impact of such hazards, which have killed thousands and caused injuries to many others. For example, the flood in Algeria in 2001 killed around 900 people and adversely affected approximately 45,000 others. In eastern Africa in 2002, heavy rain brought floods and mudslides that forced people to evacuate their homes in Tanzania, Uganda, Kenya, Burundi and Rwanda (Lukamba, 2010).

Amidst all these, the question of environmental governance is brought into perspective. Critical to environmental governance is the issues of the effectiveness of environmental policies and their performance in SSA. Studies have indicated that African leaders, with the exception of a few, remained lukewarm to global and national environmental policy implementation. Apart from inadequate financial resource, unreliable and distorted statistics and lack of the technical ability to combat environmental menace, African leaders lacked the executive-cum-political will to address environmental challenges head-on (UN, 2016, UN, 2017). In addition to the above challenges is the pervasive level of corruption characterising SSA democracies (Wonah, 2017).Also worthy of note is alienation of citizens in terms of policy inputs and the implementation phase. Public awareness and participation have long been regarded as essential ingredients of good environmental policy-making. Citizens need to feel a sense of ownership of environmental goals if they are to act to protect the environment, and it is often through citizenship engagement that environmental problems are brought to the attention of policy-makers and the wider public (Burns, Carter, Cowell Eckersley, Farstad, Gravey, … & Reid, 2018). The involvement of the citizens in environmental governance is essential as it guarantees accountability and transparency in the management of the environment.

The pictorials below lend credence to the devastating consequence of environmental menace in parts SSA.

Source:https://www.theguardian.com/world/video/2018/may/10/dozens-killed-in-kenya-after-dam-bursts-

Drought ravages South Sudan, causing water shortage and hunger

Fig 01: Africa at the Risk from Natural Disaster
Source: https://www.dw.com/en/africa-at-risk-from-natural-disasters-repo

The images above tell the story of how vulnerable SSA is to the vagaries of climate change. It is therefore argued that the pendulum can be reversed through a proactive environmental governance system. Effective policy implementation is required in order to put the region on the part of sustainable economic development. Stronger institutions and legislations are required to facilitate effective implementation of environmental policy in SSA. This must be backed up by deliberate executive or political will to enforce policies and legislation on environment.

4.1 Factors Driving Environmental/Natural Disasters in sub-Sahara Africa

Among the chief causes of environmental or natural disasters ravaging sub-Saharan Africa (SSA) are droughts, excessive flooding due to high volume of rainfall, mudslide and landslide and cyclone. However, it is imperative to state that these

disasters were caused by a number of factors: Firstly, the region (SSA) since the 1970s up to the moment has witnessed explosive growth in her population. Consider the citation below:Africa is the second-largest and second most populous continent on earth with an estimated population in 2016 of 1.2 billion people. Africa is home to 54 recognised sovereign states and countries, 9 territories and 2 de facto independent states with very little recognition. The UN Population Fund stated in 2009 that the population of Africa had hit the one billion mark and had therefore doubled in size over the course of 27 years (World Population Review, 2018).

Year	Population	Density (km²)	Growth Rate
2018	1,287,920,518	42.51	2.52%
2015	1,194,369,908	39.42	2.60%
2010	1,049,446,344	34.64	2.60%
2005	924,757,708	30.52	2.52%
2000	817,566,004	26.98	2.47%
1995	722,921,961	23.86	2.57%
1990	634,567,044	20.94	2.74%
1985	552,796,228	18.24	2.85%
1980	480,012,209	15.84	2.85%
1975	417,898,074	13.79	2.72%

Source:http://worldpopulationreview.com/continents/africa-population/

Table 1. African Population History 1975-2018

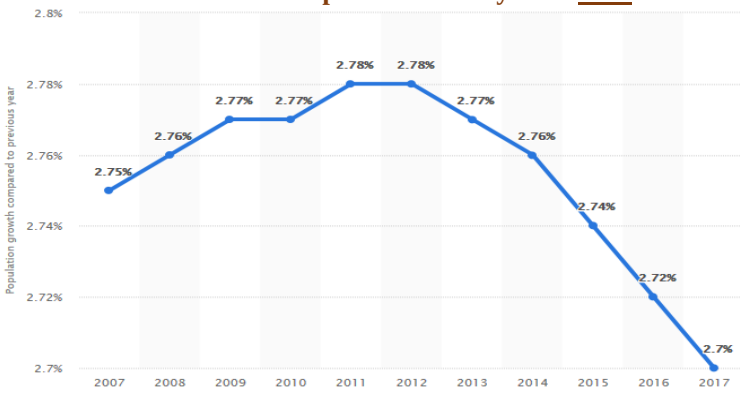


Fig02. Sub-Saharan Africa: Population growth from 2007 to 2017 (compared to previous year)

Source: Statista https://www.statista.com/

The above table and graphs vividly illustrate how critical population density is weighing on the environment in Africa. The activities of the human population are impacting negatively on the environment in Africa and this is causing desertification and environmental degradation within the region.The second factor is climate change and its attendant consequences: global warming, partly occasioned by Green House Gas Emission (GHGE); this often results in excessive rainfalls or severe droughts in some parts of the continent; ozone layer depletion and the attendant health consequences, and natural disaster intensification are doing the great harm to the environment and natural resources, not only in SSA but also the rest of the world (FME, 2016).The third factor is the irresponsible and irresponsive political regimes in most of African States. Most regimes in SSA Africa assumed the mantle of leadership through undemocratic means; several others are very autocratic and totalitarian. They hardly would respond to the need of disaster victims; also the policy choices or mitigation pathways they took to address environmental challenges are often cosmetics. The response of African leaders to environmental menace is reactive rather than proactive.

Fourthly, is the near absence of a decentralised administrative structure to stimulate community action towards responsible and responsive environmental governance amongst SSA. Many communities in SSA lacked the skills and capacity to manage environmental threats. Enlightenment or education programmes about environmental menace and its impact on SSA communities is very low, at least for the moment. This predisposed the communities to the danger of natural or environmental disasters. The political regimes which are supposed to provide the necessary leadership and partnership with communities are enmeshed in corruption (Akin, 2003; Agrawal, 2008). The implication is that the funds budgeted to combat the danger of environmental hazards are often misapplied.The fifth issue is the unsustainable mobilisation of natural resources for man use. Desert or forest encroachment has led to soil and wind erosions in most parts of SSA communities. This same behaviour had also put the biodiversity at huge risk. The natural protection for the ecosystem is often debased leading to

vulnerability of the biodiversity. Altered food chain and food web have endangered the ecosystem, and of course, occasioned the loss of many of the animal and plant species.

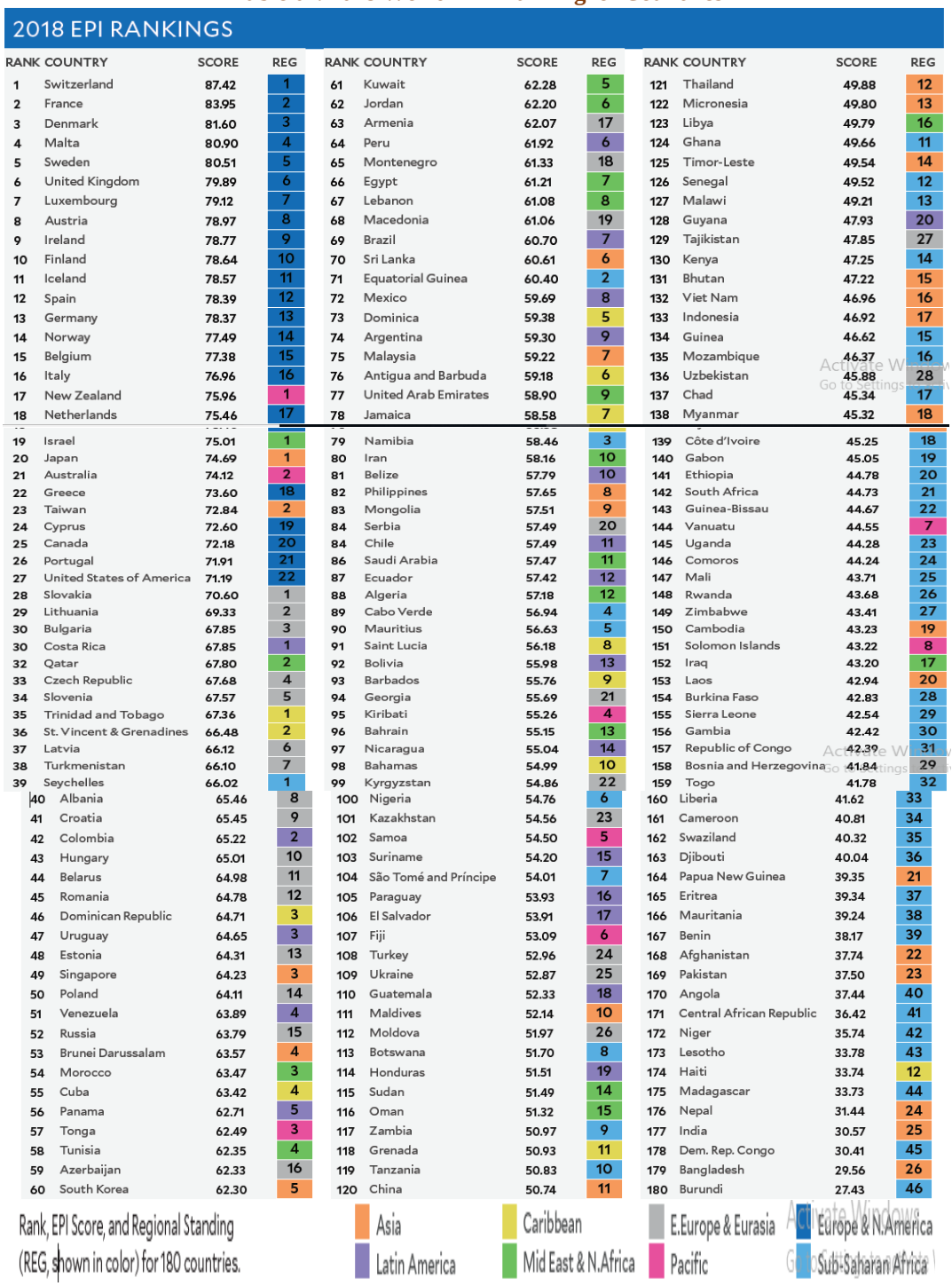
5. DISCUSSION

Inference from the literature reviewed above showed that environmental issue is not only a hydra headed monster ravaging SSA but the entire earth. This calls for collective action. While international governmental and non-governmental organisations are highly committed to the course of mitigating climate change and the environment, SSA leaders appear to be lukewarm, only preferring to blame the western nations for their environmental woes. There is need for a deep reflection. SSA countries could boast of fantastic environmental policies; and indeed most of them are signatories to several of the international treaties on environment and climate change. Yet their environmental performance index remains abysmally poor, usually at the lower rung of international ranking. As illustrated in table 2 below, most SSA countries ranked low in Environmental Performance index (EPI) 2018. The implication is that SSA remains vulnerable to several forms of environmental hazards. The environment is one of the core pillars of sustainable development. In fact, the wellbeing of humanity is dependent on the stability and sustainability of the environment.

The performance of environmental policies in SSA, and the wider world is believed to be predicated on some salient factors. First and most importantly is the level of citizens' participation or engagement at both the level of policy inputs and the stage of implementation (Burns, Carter, Cowell Eckersley, Farstad, Gravey… & Reid, 2018). From the research on Rwanda, evidence showed that Rwanda decentralisation policy ensured that environmental responsibility is adequately devolved to varied local authorities (districts, sectors, cells and villages); while the citizens are engaged at both the decision making and implementation phase of the policy (Rwanda Ministry of Local Government, 2012). Through the Monthly community work efforts (Umuganda), drainages all over the streets of Rwanda are kept clean and safe. This development has drastically reduced the level of flood and erosion menace in the country.Secondly, legislation and enforcement of environment policy and law is necessary for efficient performance of environmental policy. Unfortunately, while most SSA countries have well intended laws and policies, enforcement remains a huge challenge. This is the case of Nigeria and most SSA nations. Several factors are responsible for this state of affair: ambiguity in extant environmental laws, impunity, bribery and corruption, inadequate funding, citizens' alienation, shortage of technical expertise, and lack of executive will among a range of other factors (Kenya National Environmental Policy, 2013; MIGA, 2017).

Another perceived problem stems from the gap between policy formulation and implementation. In several SSA states, implementation of public policy remains a serious challenge for a fit for purpose consideration in governance and management of the public sector. Public authorities merely pay lip service to successful implementation of state policies. There is also the dearth of project monitoring and evaluation. This usually constrained enforceability of policies. The table below shows the level of EPI scores of various countries of the world. As can be seen, most SSAs have low scores on the performance index of nations as 2018 compared to the nations in the other regions.

Table 02. 2018 World EPI Ranking of Countries



2018 EPI RANKINGS

RANK	COUNTRY	SCORE	REG
1	Switzerland	87.42	1
2	France	83.95	2
3	Denmark	81.60	3
4	Malta	80.90	4
5	Sweden	80.51	5
6	United Kingdom	79.89	6
7	Luxembourg	79.12	7
8	Austria	78.97	8
9	Ireland	78.77	9
10	Finland	78.64	10
11	Iceland	78.57	11
12	Spain	78.39	12
13	Germany	78.37	13
14	Norway	77.49	14
15	Belgium	77.38	15
16	Italy	76.96	16
17	New Zealand	75.96	1
18	Netherlands	75.46	17
19	Israel	75.01	1
20	Japan	74.69	1
21	Australia	74.12	2
22	Greece	73.60	18
23	Taiwan	72.84	2
24	Cyprus	72.60	19
25	Canada	72.18	20
26	Portugal	71.91	21
27	United States of America	71.19	22
28	Slovakia	70.60	1
29	Lithuania	69.33	2
30	Bulgaria	67.85	3
30	Costa Rica	67.85	1
32	Qatar	67.80	2
33	Czech Republic	67.68	4
34	Slovenia	67.57	5
35	Trinidad and Tobago	67.36	1
36	St. Vincent & Grenadines	66.48	2
37	Latvia	66.12	6
38	Turkmenistan	66.10	7
39	Seychelles	66.02	1
40	Albania	65.46	8
41	Croatia	65.45	9
42	Colombia	65.22	2
43	Hungary	65.01	10
44	Belarus	64.98	11
45	Romania	64.78	12
46	Dominican Republic	64.71	3
47	Uruguay	64.65	3
48	Estonia	64.31	13
49	Singapore	64.23	3
50	Poland	64.11	14
51	Venezuela	63.89	4
52	Russia	63.79	15
53	Brunei Darussalam	63.57	4
54	Morocco	63.47	3
55	Cuba	63.42	4
56	Panama	62.71	5
57	Tonga	62.49	3
58	Tunisia	62.35	4
59	Azerbaijan	62.33	16
60	South Korea	62.30	5
61	Kuwait	62.28	5
62	Jordan	62.20	6
63	Armenia	62.07	17
64	Peru	61.92	6
65	Montenegro	61.33	18
66	Egypt	61.21	7
67	Lebanon	61.08	8
68	Macedonia	61.06	19
69	Brazil	60.70	7
70	Sri Lanka	60.61	6
71	Equatorial Guinea	60.40	2
72	Mexico	59.69	8
73	Dominica	59.38	5
74	Argentina	59.30	9
75	Malaysia	59.22	7
76	Antigua and Barbuda	59.18	6
77	United Arab Emirates	58.90	9
78	Jamaica	58.58	7
79	Namibia	58.46	3
80	Iran	58.16	10
81	Belize	57.79	10
82	Philippines	57.65	8
83	Mongolia	57.51	9
84	Serbia	57.49	20
84	Chile	57.49	11
86	Saudi Arabia	57.47	11
87	Ecuador	57.42	12
88	Algeria	57.18	12
89	Cabo Verde	56.94	4
90	Mauritius	56.63	5
91	Saint Lucia	56.18	8
92	Bolivia	55.98	13
93	Barbados	55.76	9
94	Georgia	55.69	21
95	Kiribati	55.26	4
96	Bahrain	55.15	13
97	Nicaragua	55.04	14
98	Bahamas	54.99	10
99	Kyrgyzstan	54.86	22
100	Nigeria	54.76	6
101	Kazakhstan	54.56	23
102	Samoa	54.50	5
103	Suriname	54.20	15
104	São Tomé and Príncipe	54.01	7
105	Paraguay	53.93	16
106	El Salvador	53.91	17
107	Fiji	53.09	6
108	Turkey	52.96	24
109	Ukraine	52.87	25
110	Guatemala	52.33	18
111	Maldives	52.14	10
112	Moldova	51.97	26
113	Botswana	51.70	8
114	Honduras	51.51	19
115	Sudan	51.49	14
116	Oman	51.32	15
117	Zambia	50.97	9
118	Grenada	50.93	11
119	Tanzania	50.83	10
120	China	50.74	11
121	Thailand	49.88	12
122	Micronesia	49.80	13
123	Libya	49.79	16
124	Ghana	49.66	11
125	Timor-Leste	49.54	14
126	Senegal	49.52	12
127	Malawi	49.21	13
128	Guyana	47.93	20
129	Tajikistan	47.85	27
130	Kenya	47.25	14
131	Bhutan	47.22	15
132	Viet Nam	46.96	16
133	Indonesia	46.92	17
134	Guinea	46.62	15
135	Mozambique	46.37	16
136	Uzbekistan	45.88	28
137	Chad	45.34	17
138	Myanmar	45.32	18
139	Côte d'Ivoire	45.25	18
140	Gabon	45.05	19
141	Ethiopia	44.78	20
142	South Africa	44.73	21
143	Guinea-Bissau	44.67	22
144	Vanuatu	44.55	7
145	Uganda	44.28	23
146	Comoros	44.24	24
147	Mali	43.71	25
148	Rwanda	43.68	26
149	Zimbabwe	43.41	27
150	Cambodia	43.23	19
151	Solomon Islands	43.22	8
152	Iraq	43.20	17
153	Laos	42.94	20
154	Burkina Faso	42.83	28
155	Sierra Leone	42.54	29
156	Gambia	42.42	30
157	Republic of Congo	42.39	31
158	Bosnia and Herzegovina	41.84	29
159	Togo	41.78	32
160	Liberia	41.62	33
161	Cameroon	40.81	34
162	Swaziland	40.32	35
163	Djibouti	40.04	36
164	Papua New Guinea	39.35	21
165	Eritrea	39.34	37
166	Mauritania	39.24	38
167	Benin	38.17	39
168	Afghanistan	37.74	22
169	Pakistan	37.50	23
170	Angola	37.44	40
171	Central African Republic	36.42	41
172	Niger	35.74	42
173	Lesotho	33.78	43
174	Haiti	33.74	12
175	Madagascar	33.73	44
176	Nepal	31.44	24
177	India	30.57	25
178	Dem. Rep. Congo	30.41	45
179	Bangladesh	29.56	26
180	Burundi	27.43	46

Rank, EPI Score, and Regional Standing (REG, shown in color) for 180 countries.

Asia
Caribbean
E.Europe & Eurasia
Europe & N.America
Latin America
Mid East & N.Africa
Pacific
Sub-Saharan Africa

***Source**: Yale University (2018). 2018 world environmental performance index: Global metrics for the environment. Ranking country performance on high-priority environmental issues, UK: Yale Centre for Environmental Law & Policy, Yale University*

5.1 The Thrust of Nigeria's Environmental Policy

The first environmental policy in Nigeria came on board in 1991; this was followed by the 1999 revised draft. The latest revised document came on board in 2016. The main purpose of the Nigeria national policy on environment (NPE) as contained in the 2016 revised policy document is to 'define a new holistic framework to guide the management of the environment and natural resources of the country'. In addition:This Policy derives its strength from the fundamental obligation for the protection of the environment as stated in section 20 of the Constitution of the Federal Republic of Nigeria 1999 which

provides that the "State shall protect and improve the environment and safeguard the water, air and land, forest and wild life of Nigeria". In addition, Nigeria is party to several international treaties and conventions governing environmental issues. It is on the combined thrust of these instruments that the National Policy on the Environment rests (FME, 2016).The strategic goal of Nigeria environmental policy is to 'ensure environmental protection and the conservation of natural resources for sustainable development' (FME, p.12). Then implementation framework of the NPE consists of the following components:

5.1.1 Legal Framework

the policy derives its breathe or strength from the Constitution of the Federal Republic of Nigeria 1999 which provides that the "State shall protect and improve the environment and safeguard the water, air and land, forest and wild life of Nigeria. In addition:The National Action Plan for the Promotion and Protection of Human Rights in Nigeria, November, 2002 at page 52, recognises the right to environment, and it states that the Federal Government has the following constitutional obligations, namely that Government recognizes that everyone in Nigeria has the right to (i) an environment that is not harmful to her or his health or wellbeing; (ii) have the environment protected, for the good of present and future generations through reasonable laws and other way of; (iii) preventing pollution and ecological degradation; (iv) promoting conservation and; (v) securing ecologically sustainable development and use of our natural resources, while at the same time promoting valid economic and social development (National Human Rights Commission(NHRC), 2002).

5.1.1.1 The Institutional/Governance Structure

The FME and its various agencies, the state governments and their agencies, the local government authority, the NGOs and civil society organization, are altogether involved in the governance or management of the environment in Nigeria. They are critical to the implementation of the NPE in Nigeria.

5.1.1.2 Funding

funds would be made available through budgetary provision from government coffers; corporate entities would be required to partner with the government in making funds available to finance the implementation on the national NPE.

5.1.1.3 Research and Innovation

This would help to drive innovation through the application of latest science and technology system in the fight to mitigate the impact of environmental degradation and climate change.

5.2 The Thrust of Rwanda's Environmental Policy

The first ever comprehensive policy on Rwanda environmental conservation and management was formulated by the present Government in 2003. This was followed by an organic law on environment in 2004 (REMA, 2010). In line with vision 2020, the National Environmental Policy is premised on a number of principles: sustainable growth; participation; decentralization; intergenerational equity and fairness; emphasis on prevention; polluter pays; recognition of regional and international environmental inter-connectedness. However the policy seeks to achieve a number of specified objectives (see REMA, 2010, p.18 for details of these objectives).

5.2.1 The implementation framework

The main institutional organs that provide the tenets which facilitate smooth environmental governance in the Republic of Rwanda are the following:

5.2.1.1 The National Constitution 2003

guarantees the right to a clean environment for every citizen and other people living in Rwanda, and imposes on the state and population, the responsibility for keeping the environment clean and pollution-free;

5.2.1.2 The National Decentralization Policy

2001 and subsequent adjustments – transferred planning and execution of service delivery from the central to local government levels, leaving the central authorities with the responsibilities for policy formulation, resource mobilization and capacity building support for local levels. It is partly on this basis that recent public sector restructuring has been undertaken;

5.2.1.3 The National Policy for the protection and conservation of Environment, 2003

clarifies in detail, the Government priorities and strategies for protection and conservation of the environment in Rwanda, including creation of appropriate institutional framework.

5.2.1.4 Rwanda Environment Management Authority (REMA)

the overall authority for coordinating and regulating the protection, conservation and management of the environment in Rwanda. REMA is also designated as the National Competent Authority for all international environmental treaties and agreements on environment.

5.2.1.5 The Rwanda Development Board

(Environmental Compliance and Cleaner Production Unit) which provides environmental impact assessment (EIA) advice and ensures compliance as part of the investor facilitation. In addition, RDB is responsible for wildlife conservation and tourism (REMA, p.9).

6. NIGERIA VERSUS RWANDA ENVIRONMENTAL PERFORMANCE INDEX (EPI): A SWOT ANALYSIS

6.1 The Federal Republic of Nigeria

The Environmental Performance Index (EPI) assessment in 2018 ranked Nigeria to a 100th position out of 180 countries in the comparative metrics; the measurement analysis was based on 24 performance indicators across ten issue categories relating to environmental health and ecosystem vitality including air quality, water and sanitation, heavy metals, biodiversity & habitat, climate and energy, air pollution, water resources, fisheries, agriculture, and forests. The table below indicates Nigeria's score on EPI 2018 ranking.

	CURRENT RANK	CURRENT SCORE	BASELINE RANK	BASELINE SCORE
EPI Environmental Performance Index	100	54.76	105	49.74

Fig 03. Nigeria's rank on the 2018 Environmental Performance Index
Source: https://greenerhabitat.com/2018/05/26/nigeria-2018-environmental-performance-index- ranking-and-the- way-to-sustainability-success/

Albeit, Nigeria is one of the few sub-Saharan Africa countries with a middle range score in environmental performance index, however, the 2018 EPI rank shows that Nigeria's performance for 2018 indicates that the country remains vulnerable. The major threat areas are air quality, water and sanitation. As illustrated in Fig 5 below, the country ranked 133 (among 180 countries) and 134 (among 178 countries) positions in 2016 and 2014 respectively on the EPI.

Fig 04. Nigeria EPI rankings from 2014 to 2018
Source: https://greenerhabitat.com/2018/05/26/nigeria-2018-environmental-performance-index- ranking-and-the- way-to-sustainability-success/

As illustrated in the Fig. 3 above, Nigeria's EPI score for 2014 was at 8.17% and 72.17% on "Water and Sanitation" and "Air Quality" respectively. As depicted in Fig. 4 below, there was an abrupt decrease in both "Water and Sanitation" and "Air Quality" performances from 2016 to 2018. This explain why the country's ranking is said to be poor regardless having a higher rank in 2018 compared to the previous index years (Green Habitat, 2018).

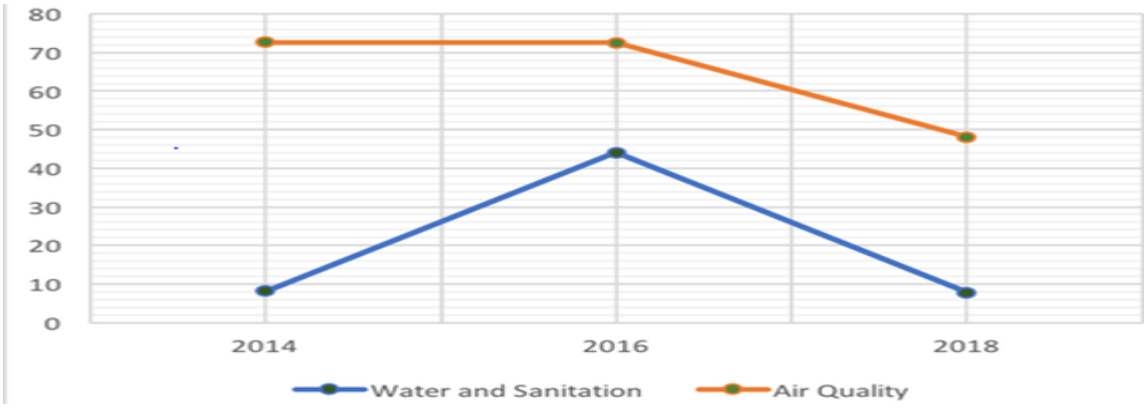


Figure 05: Nigeria EPI "Air Quality" and "Water and Sanitation" rankings from 2014 to 2018
Source: https://greenerhabitat.com/2018/05/26/nigeria-2018-environmental-performance-index- ranking-and-the- way-to-sustainability-success/

6.1.1 The Republic of Rwanda

Environmental Performance Index

	Current Rank	Current Score	Baseline Rank	Baseline Score
Environmental Performance Index	148	43.68	133	45.48

Fig06. Rwanda's 2018 EPI Ranking
Source: https://epi.envirocenter.yale.edu/epi-topline

After the end of the genocide in 1994, Rwanda's polity and economy were in shambles. But decades of reform efforts by the present government brought remarkable improvement. Though, Rwanda's latest EPI ranking is low compared to Nigeria, however, it is important to note that the country has been making sustainable improvement in her environmental policy over the course of time comapred to previous years, since the aftermath of genocide against the Tustsis.

COUNTRY	EPI RANKING	ENVIRONMENTAL PERFORMANCE INDEX	ENVIRONMENTAL HEALTH	ECOSYSTEM VITALITY
Nigeria	100	54.76	36.64	66.84
Rwanda	148	43.68	31.03	52.12

Fig 07. 2018 EPI scores for Nigeria and Rwanda

source: https://epi.envirocenter.yale.edu/epi-topline

Seen from the table above, it is vivid enough to say that Nigeria has the edge over the Republic of Rwanda in terms of EPI 2018 ranking on three subject matters: environmental performance index, environmental health and ecosystem vitality. However, this story may not be same all round as each of these countries has its area of strength and weaknesses respectively. Strengths: Nigeria has the edge over Rwanda, except in water and sanitation. Rwanda has a pretty good performace over Nigeria in water quality and sanitation; but her her performance on the other aspects of the Ranking is no match to that of Nigeria. Also in terms of Green House Gas Emission (GHGE), both countries have low level of carbon emission. The tables 6 and 7 below lend credence to this claim.

	CURRENT RANK	CURRENT SCORE	BASELINE RANK	BASELINE SCORE
Climate and Energy	10	73.85	38	60.58
CO_2 Emissions Intensity - Total	3	95.14	18	79.50
CO_2 Emissions Intensity - Power	86	37.04	86	37.04

Table 08. Nigeria's 2018 EPI Scores for Energy and Climate (carbon emissions)

source: https://epi.envirocenter.yale.edu/epi-topline

	Current Rank	Current Score	Baseline Rank	Baseline Score
Climate and Energy	17	69.91	7	79.68
CO2 Emissions Intensity – Total	16	77.66	1	100.00
CO2 Emissions Intensity – Power	--	--	--	--

Fig 09. Rwanda's 2018 EPI Scores for Energy and Climate (carbon emissions)

source: https://epi.envirocenter.yale.edu/epi-topline

The above table indicates vividly that the Republic of Rwanda has an impressive record as far as carbon emission intensity is concern. The implication is that with low level of carbon emission, Rwanda has a relatively clean air quality; this is good for a healthy life, both of plants and animal.

7. CONCLUSION AND RECOMMENDATIONS

This research paper examined and analysed comparatively the nexus between environmental policy performance and sustainable development in Nigeria and Rwanda. Results of the secondary data, including statistical tables, graphs and textual reviews show that effective implementation of environmental policy is significantly related to sustainable development. The protection and preservation of biodiversity would ensure that environmental resources will be left for the succeeding geneations to benefit from.

Evidence from Rwanda shows that a good environmental policy is related to sustainable socio-economic development. Based on this conclusions therefore, the following recommendations are proposed: Nigeria, just like the Republic of Rwanda, needs to further enforce its environmental policy in order to not only accomplish her environmental policy goals but also to realize her dreams of becoming one of the world's twentieth most advanced economies.As it is today, with the exception of the Republic of Rwanda, most of sub-Saharan African governments are yet to show genuine commitments to environmental renewal programmes. Aside been signatories to all UN conventions on environmental issues, African leaders must domesticate and fund international policies on environmental sustainability. Environmental awarness campaigns are yet to attain the highest level of publicity in most of sub-Saharan Africa. Therefore, there is serious need to make the campaign an all inclusive process. All stakeholder's must be involved in the campaign for and protection of the environment.The greening policy must be fully implemented in all sub-Sahara African coutries. One of the most menacing environmental problem in sub-Sahara Africa is the poor huygiene culture among the populace. Hygiene must be taken seriously. Open defication and litters must be banned.Ranching of domestic animals should be promoted against free grazing- which usually lead to environmental degradation and communal conflicts.

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