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ENVIRONMENTAL RISK MANAGEMENT AND HUMAN DEVELOPMENT INDEX IN NIGERIA

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Abstract

Environmental risk management promote sustainable development and accelerating human welfare. This study examined the impact of environmental risk management on the human development index (HDI) In Nigeria. The specific objectives of the study include the assessment of environmental disclosure, environmental conservation policies, environmental compliance and urban human development strategies. This study adopted qualitative research design by obtaining a time series data ranging between 2013 to 2024. Analytic data tool such as the ordinary least squares (OLS) regression technique were adopted for secondary data obtained from both national and international database preliminary diagnostic tests that employed descriptive statistics and unit root tests were applied to validate the stationarity and reliability of the variables of the study. The result of the analytical tools revealed that environment disclosure and urbanization revealed significant positive effects on the Human Development Index (HDI) whereas environmental compliance and conservation policies contributed positively to human development in Nigeria. Hence, the study concludes that environmental risk management practices improved human development. The study, therefore recommended that environmental regulations need to be put in place report on environment activities periodically and environmental conservation policies should be promoted for sustainable development in Nigeria.

Keywords: *Environmental risk, Environmental management, Human development, Development indicators, Environmental conservatism, Environmental policy*

1. Introduction

Human development has grown increasingly dependent on the environment in recent decades. Human development, as measured by the Human Development Index (HDI), prioritizes competencies and quality of life, including wealth, health, and education, above economic achievement. The report of UNDP IN 2023/2024 for Nigeria HDI was in low threshold because the HDI value was below 0.550 despite its enormous natural resources In UNDP+1 Nigeria, pollution, floods, soil erosion, land degradation, and climate-related threats threaten human health, economic stability, and sustainable development (Junaidu et al., 2022). Nigeria's National Disaster Risk Management Policy states that 20% of the nation is rapidly becoming desert, and other environmental hazards make it impossible for people to access products and services. Federal Agency for Nigerian Emergency Management (Nkwoji, 2021).

Human development and Environmental Risk Management are closely intertwined. ERM may boost HDI by minimizing hazardous exposures, protecting human capital, and enhancing health, education, and income (Arjaliès & Gibassier 2023). Poor ERM may hinder development by limiting financial prospects, education, and health (Azubuike, 2024). This relationship must be examined due to Nigeria's environmental fragility and human development difficulties.

1.1 Problem Statement and Literature Gaps

Considering Nigeria's environmental concerns and consistently poor human development results, the relationship between environmental risk management and the HDI is unclear. Nigeria's HDI is 0.548, indicating poor human development. Enterprise Risk Management (ERM) has received minimal statistical examination in relation to human development outcomes like the HDI or its components. Many studies have examined pollution, land degradation, and flood danger; others have examined environmental governance or disaster risk management. Junaidu et al. (2022) and Elmghaamez (2024) are examples.

Azubuike (2024), Elmghaamez et al. (2024), Nkwoji (2021), Arjaliès and Gibassier (2023), and Junaidu et al. (2022) emphasise the need to address substantial gaps in the research on HDI and ERM. There is little empirical research in developing countries like Nigeria that links

Enterprise Risk Management (ERM) to the Human Development Index. Modern research generally separates human progress and environmental sustainability without examining their link and reciprocal impact. Evaluations are needed to understand policy consequences and context-specific challenges.

Without these data, assessing environmental hazard management and human development results is harder. Few studies follow human development metrics throughout time or account for ERM changes. Most research overlooks the temporal ERM-HDI relationship using cross-sectional methods. This longitudinal quantitative research of environmental risk management's effects on Nigerian state-level human development fills these gaps. This study offers solid empirical evidence that excellent environmental governance supports sustainable human development in Nigeria by linking key ERM indicators to HDI findings.

1.2 Research Questions

This research asks the following questions:

i. What significant impact does environmental conservation practices have on human development index (HDI) in Nigeria?
ii. What significant relationship does environmental assessment disclosure have with HDI in Nigeria?
iii. How does environmental compliance relate to HDI in Nigeria?

1.3 Research Objectives

The main objective of this research is to investigate the relationship between environmental risk management and Human Development Index (HDI) in Nigeria. The specific objectives are to:

i. Determine the significant relationship between environmental conservation practices and HDI in Nigeria.
ii. Assess the significant relationship between environmental assessment disclosure and HDI in Nigeria.
iii. Evaluate the significant relationship between environmental compliance and HDI in Nigeria.

1.4 Research Hypotheses

The research hypotheses below guide this study:

i. There is no significant relationship between environmental conservation practices and human development index (HDI) in Nigeria.
ii. Environmental assessment disclosure has no significant relationship with Environmental conservation practices and HDI in Nigeria.
iii. Does Environmental compliance has any significant relationship with HDI in Nigeria.

2 Literature Review and Theoretical Foundation

2.1 Human Development Index

The UNDP created the HDI in 1990 to compare and assess human development across countries (Elmghaamez et al., 2024). HDI considers quality of life, education, and health, unlike GDP, which solely considers income. A broader well-being perspective is possible. Junaidu et al. (2022) compute this component using birth life expectancy, which measures a population's lifespan and health. It measures how well a country's infrastructure, food, and healthcare operate together.

Education is assessed using expected and mean years of schooling. The former assesses the average number of years 25-year-olds spend in school, whereas the latter forecasts how long a child will spend in school based on current enrolment rates (Nkwoji, 2021). Information and academic success are part of this dimension. The unit of measurement is PPP-adjusted GNI per capita in constant international dollars. Arjaliès and Gibassier (2023) define it as a country's average income and resource control.

You may calculate a person's HDI by averaging their three dimensions' normalized indices. This assures that a person's accomplishment in one area won't compensate for their failure in another (Azubuike, 2024). better scores on the HDI scale (0–1) indicate better human development. Nations are often categorized by HDI as low, medium, high, or exceptionally high. Academics, international organizations, and politicians use the HDI to evaluate governments' efforts to improve people' lives. Elmghaamez et al. (2024) say the HDI makes it simpler to assess how economic policies, laws, and environmental risk management influence Nigerian living standards.

2.2 Environmental Risk Management

Ahmed and Muhammad (2017) define environmental risk management (ERM) as financial institutions' identification, assessment, management, communication, and oversight of environmental issues. Environmental risk management may enhance credit transactions, investment portfolios, including loans and investments. A mining business should utilize ERM systematically to reduce environmental risk and solve all relevant issues. Set targets and criteria for risk assessment (Elmghaamez et al., 2024). ERM should be used systematically throughout a mining operation's multiple components to reduce environmental risk and handle all relevant issues.

According to Wei-Lun and Yan-Kai (2018), risk assessment objectives and criteria should be specified during planning. Risk assessments must incorporate monitoring findings to swiftly identify and remove emerging threats. ERM requires extensive skill and resources to execute. Enterprise Risk Management (ERM) effectiveness relies on timely execution of risk management suggestions and efficient cloud-based risk analysis communication, according to Umoren et al. (2018). This environmental risk management research included pollution, conservation, and social effect costs (Janto et al., 2024).

Desertification, floods, and erosion in Nigeria generate financial losses and infrastructural damage, lowering the income component of the Human Development Index. Environmental hazards restrict public resource and service access, says the National Disaster Risk Management Policy. However, "NEMA," the Nigerian National Agency for Emergency Management's disaster risk reduction measures in Nigerian states from 2010–2023, boost HDI revenue.

2.2.1 Environmental Conservation Practices

Environmental conservation methods enable ecosystem survival and appropriate resource management (Ajah & Adegbie 2023). These include lowering trash and enhancing recycling programs, implementing sustainable forestry and agricultural techniques to preserve soil and biodiversity, and reducing energy use via efficiency measures (Elmghaamez et al., 2024). minimize emissions to minimize air pollution, restore ecosystems and wildlife via protected areas, and treat and use water efficiently. These activities may assist persons, organizations, and communities preserve our planet and its inhabitants (Ghardallou 2022)

Assani et al. (2021) describe environmental conservation techniques as any activity that ensures ecosystem survival and responsible resource usage. Waste management, energy conservation, water conservation, and biodiversity preservation are being done to reduce human impact on the environment (Nassani et al., 2021). These include water conservation, renewable energy, composting, recycling, and green space upkeep. Conservation efforts include protecting natural areas, restoring damaged ecosystems, and following pollution rules (Janto et al., 2024). By taking these actions, society may protect the environment for future generations while growing economically.

Effective control methods and their implementation have financial consequences. A wide range of practices are called "environmental conservation" to reduce negative impacts on the natural world, including preventing ecosystem degradation and water and air pollution that harms living things (Norhasimah et al., 2015). This includes air, water, and environmental pollution reduction costs (Panigrahi & Vachhani, 2021). Environmental conservation is necessary to minimize environmental hazards fairly and sustainably for the company and its stakeholders.

2.2.2 Environmental Assessment Disclosures.

Al-Jaifi et al. (2020) define "environmental assessment disclosure" as a corporation being transparent about its environmental impact. This involves identifying environmental hazards such pollution, habitat loss, and resource depletion. It describes how to detect and mitigate risks (Junaidu et al., 2022). The disclosure includes continuous monitoring activities, their financial effect, and stakeholder participation in addressing these concerns. Al-Amin et al. (2019) say this technique combines environmental issues into company strategy to improve regulatory compliance, informed decision-making, transparency, and sustainable development. The repercussions of these commitments include higher healthcare costs, lower productivity, damaged infrastructure, and lower property values. Poor communities generally suffer the most from bad environmental assessment results, worsening socioeconomic inequality (AlSaifi et al., 2020)

Ani et al., (2022) suggests strong management methods, stringent rules, and inventive solutions for businesses and governments to mitigate environmental risks. These projects target vulnerable ecosystems, public health, and economic growth to generate green employment and promote sustainable development. Investments in ecosystem restoration and preservation may also promote a region's reputation as a sustainable and attractive location to live and conduct business (Nkwoji, 2021). To establish sustainable, equitable, and successful communities for future generations, we must all protect the environment.

2.2.3 Environmental Compliance

Brennan et al. (2021) defined environmental compliance as strict adherence to legislation and recommendations. A company's waste management, pollution prevention, resource conservation, and carbon emission reduction must not hurt the environment. Janto et al. (2024) define environmental compliance as regulatory compliance that protects the environment. This is called "environmental compliance (Kolawole & Iyiola 2023). This technique aims to prevent pollution, habitat loss, and resource depletion (Arjaliès & Gibassier, 2023).

Ani et al., (2022) states that environmental compliance is essential for sustainable development, public health, ecosystem conservation, and global sustainability. It controls waste, reduces environmental harm, preserves resources, and protects biological diversity. To be environmentally compliant, one must reduce air, water, and soil pollution; manage, treat, and dispose of waste properly; encourage energy, water, and mineral efficiency; and protect ecosystems and biodiversity.

Wesseh et al. (2024) list numerous elements that affect environmental compliance. Government rules and regulations protect the environment and public health, which affect legal requirements. These laws regulate corporations to prevent environmental damage. Financial incentives can help firms adopt green practices (Azubuike, 2024). Compliance is bringing cost savings, operational efficiency, and a better public image to companies (Janto et al., 2024).

According to Crossley et al. (2021), social responsibility motivates compliance. Many companies now realize they have an ethical obligation to reduce their environmental effect, which drives them to go above and beyond legal requirements. All of these aspects make environmental compliance rock solid, ensuring that corporations and other organizations help maintain Earth livable. Treaties and agreements may help governments overcome global environmental issues (Hickmann & Elsässer 2020).

2.3 Theoretical Review Sustainable Development Theory

This study uses the Brundtland Commission's 1987 theory of sustainable development to examine how governance and environmental risk management strategies can improve human development indicators and strengthen the link between environmental protection and well-being. This study is based on sustainable development theory, which links human development with corporate risk management. It provides a theoretical and practical framework for assessing Nigeria's environmental policies' resilience, intergenerational equity, and sustainable resource management. This study examines how environmental risk manage ment affects Nigeria's Human Development Index (HDI) and how well it matches the UN Sustainable Development Goals Goal 13 (Climate Action) and Goal 15 (Life on Land) (Arjaliès & Gibassier, 2023).

In its 1987 report Our Common Future, the Brundtland Commission introduced the Sustainable Development Theory, a cornerstone of international development talks. By "satisfying present requirements without jeopardizing the capacity of future generations to fulfil their own needs" (World Commission on Environment and Development, 1987), the theory claims its purpose. This approach emphasizes the balance between economic progress, social inclusion, and environmental protection. For sustained prosperity, environmental protection must be emphasized alongside economic growth and human well-being. Sustainable development theory states that environmental degradation threatens social stability, public health, and economic productivity (Azubuike, 2024).

Nigeria needs this approach to quickly grow its economy and population while lowering its environmental effect. Environmental risk management (ERM) may help accomplish sustainable development objectives by reducing environmental risk sensitivity and improving human well-being. The idea suggests that policy integration aligning social, economic, and environmental goals is important for balanced development. Health, wealth, and education results are part of the Human Development Index (HDI), and discovered that weak ERM systems may increase environmental shocks and threaten these achievements (Elmghaamez et al., 2024).

The present research is centered on sustainable development, which links human development with corporate risk management. It provides a theoretical and practical framework for assessing Nigeria's environmental policies and practices for fair generational sharing, resilience building, and sustainable resource management. This research examines how environmental risk management influences the Human Development Index (HDI) to assess Nigeria's progress toward UN Sustainable Development Goals 13 (Climate Action) and 15 (Life on Land). Previously mentioned hypothesis applies to this investigation.

2.4 Empirical Review

Janto et al. (2024) examined how compliance and risk management affect Indonesian banks' financial performance and reputation. Risk management and compliance standards have harmed Indonesian financial firms' reputations and finances. SEM-PLS 3 was used to analyze quantitative data from 160 financial institutions using a standard questionnaire. The results suggest that risk management and compliance may boost a company's reputation and financial line. Risk management improves both performance over compliance. According to these research, financial institutions require rigorous risk management and compliance processes to remain financially stable and enhance their reputation.

Li et al. (2023) examined how local environmental rules influenced the relationship between greenwashing and financial success in 2816 observations from 21 sectors and 735 Chinese-listed businesses between 2013 and 2017. Greenwashing and business financial success are moderated by media exposure, media favorability, and local environmental constraints. The results reveal that greenwashing benefits CFP despite severe environmental regulations and unfavorable media attention. A wide knowledge gap makes greenwashing hard to discern for stakeholders in underdeveloped economies. Local environmental laws or unfavorable media attention might decrease this knowledge gap, making greenwashing simpler to notice. We believe this is the first institutional research on greenwashing and CFP.

Chen and Xie (2022) examined how ESG disclosure affects company profits. This research uses staggered difference-in-differences on a subset of publicly listed non-financial firms between 2000 and 2020 to address endogeneity. Companies with greater ESG transparency do better financially. Companies with ESG investors, a lengthy operational history, strong media attention, and higher agency fees benefit more from ESG disclosure. ESG disclosure and financial performance are heavily influenced by ESG-focused investors. Extensive research yields two conclusions. ESG disclosures attract investors. Positively, ESG investors impact the association between ESG ratings and financial performance.

Yusof et al. (2020) analyze environmental laws to reduce building's environmental impact. The construction sector is slow to adopt GPs. General practitioners may convince construction companies to use them. This research examined the link between general partners (GPs) and certified Financial Planner and if firm size affected it. We utilized partial least squares structural equation modelling to evaluate Malaysian construction company survey data. The findings show that green project management, subcontractors, and suppliers affect CFP. In green project management and sustainable business practices, big corporations outperformed smaller and medium-sized ones financially. Building managers and authorities must adjust to complement general practitioners.

3 **Methodology**

This study employed expos-facto research approach on data obtained from both the National and International research centers ranging from 2013 – 2024. This method is adopted by the researcher as it helps to investigate long-term patterns of multinational firm Performances and trends. The study obtained data from national statistics agencies and United Nations Development Programme calculate HDI scores and components while climate knowledge portal.worldbank.org provided environmental regulatory agency reports, the World Bank country profile on climate risk in Nigeria and disaster risk management policy papers including National Emergency Management data. We constructed environmental risk management indicators using these materials. The Global Bank and Nigerian Bureau of statistics provided Gross Domestic Product capita urbanization rate and governance statistics. The statistical data analytics techniques employed include correlation analysis and ordinary least squares regression. The study checked serial correlation, multicollinearity and heteroskedasticity.

3.2 Model Specification

The model is based on Igbekoyi and Oluwajuyigbe (2022) study. Equation includes return on assets (ROA), environmental conservative practices (ECP), risk assessment disclosures (RAD), environmental compliance

(EC), constant and coefficient terms (α, β), number of businesses (i), time period (t), and error term (ɐ).
ROA it = α0 + β1ECPit + β2RADit + β3ECit + Ɛit…… (i)

The modified model of this study is as specified below:
HDI it = α0 + β1ECPIit + β2EADIit + β3 ECI it + β4 UR it + Ɛit……(ii)
Where;
HDI = Human Development Index for Nigeria in year t
ECPI = Environmental Conservation Practices index in year t
EADI= Environmental Assessment Disclosures index in year t
ECI= Environmental Compliance index in year t
UR = Urbanization rate (%) in year t (control)
α = constant term, ε_, t = Time Period, t = error term

Table 3.1 Variable Measurement

Variable	Type of Variable	Variable Measurement & Description	Literature Source
Human Development Index (HDI)	Dependent	Dimensionless index (0–1), Composite measure of life on education, expectations and income.	UNDP (2023); Janto et al., (2024);
Environmental Conservation Practices Index	Independent	Index (0–100), Index capturing activities on waste management performance and conservation policy implementation etc	UNDP (2023); Azubuike (2024)
Environmental Assessment Disclosures Index	Independent	Index (0–100), Measure of environmental Impact Assessments (EIA) disclosures	UNDP (2023) Elmghaamez et al. (2024)
Environmental Compliance Index	Independent	Index (0–100), Score measuring adherence to environmental regulations and compliance rates	UNDP (2023) Azubuike (2024);
Urbanization rate (UR)	Control	Percentage (%) of population living in urban areas	UNDP (2023) Elmghaamez et al. (2024)

Source: Data Compiled by Author, 2025

4 Result and Discussion

Table 4.1: Descriptive Analysis

Variable	HDI	EADI	ECI	ECPI	UR
Mean	0.500833	41.50000	44.08333	49.41667	49.20000
Median	0.500000	41.00000	43.00000	49.50000	49.20000
Maximum	0.528000	55.00000	58.00000	60.00000	51.50000
Minimum	0.480000	30.00000	35.00000	40.00000	47.00000
Std. Dev.	0.015177	7.585872	7.128156	6.258933	1.460386
Skewness	0.253231	0.234261	0.515742	0.097390	0.042436
Kurtosis	2.031800	2.071225	2.255502	1.940832	1.797934
Jarque-Bera	0.596957	0.541068	0.809118	0.579888	0.726083
Probability	0.001946	0.002972	0.007271	0.008305	0.005558
Sum	6.010000	498.0000	529.0000	593.0000	590.4000
Sum Sq. Dev.	0.002534	633.0000	558.9167	430.9167	23.46000
Observations	12	12	12	12	12

. **Source: Data Analysis, 2025**

Table 4.1 displays descriptive statistics for variables from 2013 to 2024. The study found moderate human growth in Nigeria, with an average HDI of 0.5008. Environmental Assessment Disclosure Index (EADI) scores averaged 41.50, suggesting poor disclosure. The Environmental Conservation Measures Index (ECPI) mean value of 49.42 and Environmental Compliance Index (ECI) mean value of 44.08 suggested modest conservation and compliance attention. There was steady urbanization, as demonstrated by the average UR of 49.20%. Kurtosis values from 1.79 to 2.25 revealed a mesokurtic distribution, whereas other variables exhibited skewness values near to zero, suggesting symmetry. The data series seems to be regularly distributed if the Jarque-Bera test probability is valid ($p < 0.01$). Small standard deviations imply minimal variable change across the analyzed years, indicating data stability.

Table 4.2: Pool Unit Root Test

	t-statistics	Probability
ADF - Fisher Chi-square	0.02855	0.0000
Series	HDI, EADI, ECI, ECPI, UR	
Cross-section	1	
Observations	12	

Source: Data Analysis, 2025

In Table 4.2, the ADF-Fisher Chi-square test shows stationarity at level for HDI, EADI, ECI, ECPI, and UR (t-statistic = 0.02855, p = 0.0000). Without unit roots, the series may be utilised in regression analysis without differencing.

Table 4.3: Correlation Analysis

Variable	HDI	EADI	ECI	ECPI	UR
HDI	1	0.99730	0.99425	0.99707	0.99465
EADI	0.99730	1	0.99444	0.99660	0.99539
ECI	0.99425	0.99444	1	0.98741	0.98508
ECPI	0.99707	0.99660	0.98741	1	0.99756
UR	0.99465	0.99539	0.98508	0.99756	1

Source: Data Analysis, 2025

Table 4.3 shows that correlation matrix variables are significantly connected. HDI is strongly correlated with UR (0.9947), ECPI (0.9971), EADI (0.9973), and ECI (0.9943). Better urbanization and environmental management boost human development. The diagnostic portion found extraordinarily high correlations (more than 0.98), suggesting multicollinearity among independent variables.

Table 4.4: Other Diagnostic Tests

Test	Diagnostic Tests/Methods	Test Statistic	P-Value	Decision
White's test for heteroscedasticity	Chi-square	8.395673	.395804	Ho is accepted, thus no heteroskedasticity exists
Autocorrelation	Breusch-Godfrey test for first-order autocorrelation	14.256246	2.32923	Ho is accepted, thus no autocorrelation exists
collinearity diagnostics	Variance Inflation Factors	EADI ECI ECPI RU	458.301 118.652 \297.396 232.738	

Source: Data Analysis, 2025

White's test (p = 0.3958) and the Breusch-Godfrey test (p = 2.3292), respectively, accept the null hypotheses for heteroskedasticity and autocorrelation (Table 4.4). Model residuals are homoscedastic and serially uncorrelated. The extraordinarily high Variance Inflation Factors (VIF) for the independent variables (118.652 to 458.301) suggest multicollinearity. Due to its high significance, the regression model is still statistically valid.

Table 4.5: Ordinary Least Square Regression Result

SERIES: EADI ECI ECPI RU				
Method: Pooled Least Squares Sample: 2013 2024 Included observations: 12 Cross-sections included				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.368682	0.033667	10.95076	0.0000
EADI	-0.000385	0.000233	-1.654005	0.1028
ECI	0.000998	0.000126	7.920068	0.0000
ECPI	0.001654	0.000227	7.281215	0.0000
UR	0.000455	0.000861	0.527752	0.5994
R Square = 0.998022 Adjusted R^2 = 0.997904 F-stats. = 8450.269 Prob(F-statistic) =0.000000 Durbin-Watson stat= 3.420675 at 5% level of significance are disclosed above				

Source: Data Analysis, 2025

Table 4.5 demonstrates that EADI, ECI, ECPI, and UR effectively explain HDI variance, with R^2 values of 0.9980 and 0.9979, respectively. An ANOVA with a 0.0000 p-value proves the model's statistical significance. Research suggests that disclosure processes have little influence on human development, with EADI having a slight negative effect on HDI (β = -0.000385, p = 0.1028). ECI and ECPI significantly improve HDI (β = 0.000998, p = 0.0000) and 0.001654, p = 0.0000, respectively, indicating that environmental norms and conservation actions significantly boost human development. The control variable, UR, indicates a tiny but positive link between urbanization and human development (β = 0.000455, p = 0.5994). Based on the Durbin-Watson score of 3.4207, the model does not exhibit considerable autocorrelation.

Discussion of Findings

The findings show that conservation and environmental compliance boost Nigerian human development. Accordingly, Al-Amin et al. (2022) concluded that environmental regulations improved financial and social well-being. Ajah and Adegbie (2023) showed that sustainable environmental practices boost national wellbeing and reduce ecological risks. Given the limited association between HDI and environmental disclosure, reporting alone may not affect human development without meaningful action. Okafor and Udeh (2020) believe that Nigerian environmental reports lack transparency and accountability. This finding supports this. Akinyemi and Adeniran (2021) say that urbanization in Nigeria strains infrastructure rather than improving it, notwithstanding its slight benefits. Sustainable environmental planning has lagged behind Nigeria's urban expansion. The findings emphasize the relevance of environmental protection and rule-following in sustainable development and human well-being in Nigeria.

5. Conclusion

Environmental risk management seems to affect Nigerian human development, according to the research. Environmental disclosure and urbanization little affect the Human Development Index, while compliance and conservation considerably increase it. If Nigeria wishes to improve its human development index, it must promote sustainable conservation and enforce strict environmental norms.

5.1 Contributions to Knowledge

i. This study contributes to environmental economics by showing that conservation and environmental compliance activities in Nigeria boost human development.

ii. The research found that environmental disclosure practices alone cannot enhance health without robust environmental legislation.

iv. This research integrates environmental and human development indexes to assess sustainability in disadvantaged countries.

5.2 Recommendations

i. The Nigerian government must improve enforcement of environmental rules and punishments.

ii. Companies should include environmental preservation into their business plan to support national growth.

iii. Policymakers should make environmental disclosure frameworks clear and high-quality to provide demonstrable developmental benefits.

5.3 Limitations of the Study

Despite the fact that the researcher intends to produce accurate and reliable results for this study conducted on Environmental Risks Management and Human Development Index, however, the study was affected by non-standardized and scarce data from Nigeria quoted companies. However, the study was also confronted with non-availability of historical information on EMR indicators. Hence, this study excluded long periods environmental control changes. Moreover, this study was limited be the peculiarities of Nigeria political, economic, social, institutional and environmental factors which may limit the findings to be generalized to other countries that have different peculiarities index. Epidemic factors such as corruption, security issues, conflict and economic instability were not factored into empirical model which

invariably may make the models incapable of explaining variations in human development index

5.4 Suggestions for Further Studies

Future studies may extend the coverage of interpretation on Human Development Index and Environmental Risk Management in Nigeria by integrating further variables on environmental risk management like biodiversity loss, waste management practices and climate change. The inclusions of these variables would provide a deeper understanding on Environment Risks Management and Human Development Index in Nigeria. Further studies may conduct comparative study analysis across different states in Nigeria which would assist to bring out further outcomes from different states in Nigeria and proffer specific policy recommendations.

In addition, researcher could adopt longitudinal series data to investigate their causal relationships and long terms trends which would promote empirical findings robustness. Finally, subsequent studies may employ other Human Development Index variables like poverty, healthcare, and education level which would reveal comprehensive findings.

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