

Environmental Laws and Regulations and the Compliance of oil and gas industry to the Joint Venture Agreement in the states of the Niger Delta, Nigeria

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Abstract: Degradation of environment, occasioned by massive pollution of land, water and air in Niger Delta, results in slow and gradual death of the people. Joint venture agreement spells out legal relationships between owners of lease and lays down rules and procedure for joint development of the area. This paper examined environmental laws and regulations and compliance of oil and gas industry to the joint venture agreement. Cross sectional research design was adopted. Primary and secondary data sources were used. Analysis of Variance/Duncan Post Hoc; Spearman rank Correlation and the Student t-test analyses were used. Results showed weighted average mean 3.64 indicating acceptance (59.0%) agreed to statements. Laws and regulations put forward to checkmate activities of oil and gas companies did not achieve mandate for establishment as indicated by majority of respondents. On compliance, result revealed that weighted mean average values were high enough to accept all statements. Environmental laws in Niger Delta and the nation are faced with enormous challenges, ranging from lack of trust in the administration of Joint Venture Agreement by the IOCs and government of Nigeria and the complete evasiveness to the laws and regulations by the oil and gas companies, (72.5%) respondents strongly agreed. Hypothesis showed F ratio of 1.350 at probability value of 95% (0.05) of degrees of freedom (Df) 59 was 0.258. Since, the level of significance of 0.258 was higher than the p-value of 0.05, Null hypothesis (H_0) was retained. Second result showed F ratio of 3.415 at probability value of 95% (0.05) of degrees of freedom (Df) 59 was 0.009. Since, the level of significance of 0.009 was lower than the p-value of 0.05, Null hypothesis (H_0) rejected, alternative hypothesis (H_1) accepted. There is significant variation in compliance by oil and gas companies to the joint venture agreements in the study area.

Keywords: Environmental laws/ Regulations, Compliance, Joint Venture, Agreements.

1. Introduction

The oil and gas joint venture arrangements in Nigeria is an un-incorporated joint ventures under which each co-venturer has an undivided interest in the lease as well as all oil and gas produced and the assets employed in oil and gas production. The joint venture partnerships between NNPC (on behalf of Nigerian government) and international oil companies (IOCs) are public-private partnerships (PPPs), in which NNPC is the public corporation while international oil corporations (IOCs) are the private corporations. Thus, all rights and obligations accruing to the leasee under an oil mining lease (OML) would automatically accrue to all the joint venture partners including NNPC (Adefulu, 2008; Ameh, 2011). The oil joint venture creates a relationship of co-ownership and co-tenancy between or among the international oil companies (IOCs) where the former produce the operator. Under the joint venture partnerships in Nigeria, joint operating agreement (JOA) or joint venture agreement (JVA) governs the relationship between the partners or parties to the agreement including budget approval and supervision, crude oil lifting and sale in proportion to equity and funding by partners. The joint operating agreement (JOA) spells out the legal relationships between the owners of the lease and lays down the rules and procedure for joint development of the area and joint property. The various joint venture projects are subject to agreements governing the relationship of the contracting parties or joint partners. There are relevant laws and regulations in both federal and State level in Nigeria, but there are challenges. According to Mumma, (2002) enforcement is one very major challenge. Furthermore, He defines enforcement as the process of compelling compliance with legal requirements available to the government enforcement agencies or institutions. It is against this backdrop that this paper will unravel whether the joint venture agreement between the Federal government and the International oil companies (IOCs) was to a larger extent the cause of non-compliance to oil and gas regulations by the oil and gas industry in the Niger Delta Region.

2. Aim and Objectives of the Study

The aim of this paper is to examine the nature of environmental laws/regulations and the compliance of oil and gas industry to the laws under the joint venture agreement in the braced states of the Niger Delta Region.

The objectives of the study are to:

- (i) examine the nature and types of environmental laws or regulations applicable to the oil and gas industry in the Niger Delta Region.
- (ii) analyse the compliance of oil and gas companies in the Niger Delta to enforcement of environmental laws/regulations in the joint venture arrangement with government of Nigeria

3. Hypotheses for this study

- 1) There is no significant variation in the enforcement of environmental laws or regulation by oil and gas industry in the braced states of the Niger Delta.
- 2) There is no significant variation in compliance of oil and gas companies to the joint venture agreement.

4. Method of study

The research utilized cross sectional survey research because it is a snap shot of the sampled population in the Niger Delta region. This structure is relevant for this research since it is descriptive and records information existing in the population without manipulating the variables. Data obtained from the field using questionnaire instrument constituted the primary source of data. In addition, secondary data were obtained from government organizations such as the National Population Commission (NPC, 2006), National Bureau of Statistics (NBS, 2012) and International Organizations such as the United Nations (UN) and previous studies carried out by eminent scholars in the field of environmental law. The research adopted inclusive/exclusive criteria to select host communities from the local government areas in the states as well as the capitals of the braced states of the Niger Delta region. Inclusion criteria were characteristics that the prospective subjects must have if they are to be included in the study, while exclusion criteria were those characteristics that disqualify prospective subjects from inclusion in the study. In this sense, inclusion and exclusion criteria are usually written in a positive way: if a participant has inclusion criteria, they are in; if they have exclusion criteria, they are out. The state capitals to be selected are inclusive because of their peculiarity in oil and gas activities and were Yenagoa, Port Harcourt, Uyo, Calabar Municipality, Benin and Delta.

5. Sampling Technique and Sample Size Determination:

A random selection of community in each state capital in the braced states was adopted. The Taro Yamane formula was used to get a sample size of 400 head of households, for each State capital. The study instrument were administered to heads of households who are knowledgeable about oil and gas industry and activities in the states in the sampled state capitals/local government areas in the study area. Taro Yamane (1967) provides a simplified formula to calculate sample size where N is population size and e is the level of precision. The formula for Taro Yamane;

$$n = \frac{N}{1 + N(e)^2}$$

Where n = sample size

1 = constant

N = Population size = 456,503

e = Error margin, 5% = 0.05

Simple random sampling technique was used to randomly select the Local Government Areas where participants were drawn for the study because it gives an equal and non-zero opportunity for sample to be selected (Oyegun, 2003). Six local government areas and six state capitals were randomly selected by inclusive/exclusive criteria because of the oil/gas activities engaged in the area, which formed the sampling frame. Systematic sampling technique was used to select the communities in the local government areas where questionnaires were administered. Table 1 and 2 was drawn through inclusive /Exclusive criteria from the list of oil/gas companies operating in the sampled areas as well as government agencies. The number of Managers /HSE staff of the oil/gas companies and Heads/Senior officers in the government agencies was determined and used for the key person's interviews.

Table 1: Summary Statistics of the Target population (Heads of Households)

| States | Local Government Area(s) in state capital | LGA Selected (inclusive/exclusive criteria) | Population Projected estimate 2020 | Approximate number of estimated household | Approximate household sample size |
|--------------|---|---|------------------------------------|---|-----------------------------------|
| Bayelsa | One (1) | Yenogoa | 504,434 | 84,072 | 74 |
| Rivers | One (1) | Port Harcourt | 771,157 | 128,526 | 113 |
| Akwa Ibom | One (1) | Uyo | 438,103 | 73,017 | 64 |
| Cross River | One (1) | Calabar Municipal | 263,011 | 43,835 | 39 |
| Edo | One (1) | Benin City | 536,265 | 89,378 | 79 |
| Delta | One (1) | Osaba | 214,829 | 35,805 | 31 |
| TOTAL | Eleven (6) | Six (6) | 2,618,677 | 454,633 | 400 |

Source: Adapted from National Population Commission, 2006.

Table 2: Summary of Statistics of oil/gas companies/Government Agencies/NGOs interviewed in the study Area

| States | Selected oil/gas companies | Selectd Government Agency/NGO | Number of Staff Randomly Selected for interview | Percentage Number of Staff interviewed |
|--------------|----------------------------|-------------------------------|---|--|
| Bayelsa | 7 | 3 | 70 | 15 |
| Rivers state | 19 | 7 | 130 | 27 |
| Akwa-Ibom | 12 | 4 | 110 | 23 |
| Cross Rivers | 5 | 5 | 45 | 10 |
| Edo State | 5 | 3 | 30 | 8 |
| Delta State | 12 | 8 | 80 | 17 |
| Total | 60 | 30 | 475 | 100 |

Source: Researcher's Computation, 2020

6. Methods of Data Analysis

In line with the objectives of this study, descriptive statistics such as simple percentages, cross tabulations and charts were used to explain the results of the analyses while inferential statistics such as analysis of variance (ANOVA), Duncan Post Hoc Test, and Student T statistics and t-test were used to test the hypotheses and level of significance of samples of observations for the study.

Furthermore, the information filled in the questionnaires were collated and analyzed by the use of mean and rank order statistics for research objectives 1, 2, 3, 4 and 5. The Likert scale for data collected was as follows: Strongly Agree (SA) -5 points, Agree (A) - 4 points, Disagree (DA)-3 points, Strongly Disagree(SD)- 2 points, Undecided (UD)- 1 point.

Weighted Mean: This was calculated by multiplying the frequency of each point in the scale with its quantifier for all points and dividing by the total number of respondents. The criterion mean is the average of all the quantifiers, i.e. $\frac{5+4+3+2+1}{5} = 3.0$

7. Results

Nature and Types of Environmental Laws Applicable to Oil & Gas in Niger Delta (ND) (Residents)

The question interrogating the nature and types of environmental laws and regulations in Niger Delta are displayed on Table 3 and Table 4. The distribution on Table 3 revealed that statements 2, 3, 4, 5, 6, 7, 8 and 9 were all not agreed to by sampled residents because of low weighted mean values of 2.42, 2.38, 2.46, 2.43, 2.40, 2.46, 2.40, and 2.40 respectively. These statements based on weighted mean values showed that the responses received were not above 2.50 which indicated that the statements were strongly disagreed amongst majority of sampled residents in the study area. However, the weighted mean for statement 1 (3.80) was tending towards 4.00 and this was accepted and it thus mean that (62.3%) of sampled residents agreed to this

statement. Also, the weighted average (mean) of 3.64 indicating acceptance revealed that (59.0%) agreed to this statement. Thus, laws and regulations put forward to checkmate the activities of oil and gas have not achieved its mandate for establishment as indicated by majority of sampled respondents in the study area. The residents' opinions concerning the 1999 Constitution on the protection of lives and individual rights was also illustrated on the table. The distribution on Table 4 for responses amongst the NGOs/companies showed that statements 1 to 10, except statements 6, 7, and 9 were accepted. It does mean that all respondents (100%) (4.57) believed the 1999 constitution guarantees protection of lives and individual rights; about (78.9%) (4.27) of sampled respondents believed that Oil pipeline Act enacted for regulation has fulfilled its mandate; also about (78.0%) (4.22) agreed to the statement on Petroleum Act; More so, about (100%) (4.66) of sampled respondents agreed that EIA enacted to delineate projects has achieved this core mandate in Niger Delta (ND); also about (73.0%) (4.10) agreed that the EGASPIN Act has been effective. Also about (71.0%) (4.03) of sampled respondents agreed that Oil in Navigable Water Safeguarding pollution has been effective since it became operational. However, statements 6, 7 and 9 that were not accepted and this indicated that (62.0%) (3.35), (67.0%) (3.15) and (69.0%) (2.95) disagreed with these statements in the study area. The distribution of the opinion of sampled NGOs/Companies concerning the stand of the 1999 constitution in protecting lives and individual rights was illustrated on the table.

Table 3: Nature and Types of Environmental Laws & Regulations in ND (Residents)

| S/N | LAWS & REGULATIONS | SA | A | D | SD | UND | WA | R |
|-----|---|--------------|-------------|--------------|--------------|-------------|------|------------|
| 1 | The 1999 Constitution guarantees the protection of lives and individual right, but it is not the case in Niger Delta (ND) | 205 51.3% | 44 11.0% | 65 16.3% | 39 9.8% | 47 11.8% | 3.80 | Agreed |
| 2 | Oil pipeline Act was enacted to regulate oil/gas company pipeline routes, and has fulfilled this mandate in the ND region | 19 4.8% | 38 9.5% | 98 24.5% | 183 45.8% | 62 15.5% | 2.42 | Not Agreed |
| 3 | Petroleum Act was promulgated to protect the rights of oil/gas companies' activities and in case of pollution restore the impacted areas | 12 3.0% | 37 9.3% | 101 25.3% | 189 47.3% | 61 15.3% | 2.38 | Not Agreed |
| 4 | EIA was enacted to delineate projects that requires mandatory assessment, and has achieved this core mandate in ND region | 20 5.0% | 33 8.3% | 113 28.3% | 178 44.5% | 56 14.0% | 2.46 | Not Agreed |
| 5 | AGASPIN Act was promulgated to regulate operations of oil/gas companies offshore/onshore and has been effective in this purpose in the ND | 20 5.0% | 37 9.3% | 99 24.8% | 183 45.8% | 61 15.3% | 2.43 | Not Agreed |
| 6 | NESREA Act was enacted to enforce compliance to environmental laws in oil/gas industry; the agency has been effective since creation | 16 4.0% | 38 9.5% | 95 23.8% | 191 47.8% | 60 15.0% | 2.40 | Not Agreed |
| 7 | Oil/gas re-injection Act was enacted to prevent gas flaring in the ND and has achieved this core mandate | 19 4.8% | 38 9.5% | 105 26.3% | 182 45.5% | 56 14.0% | 2.46 | Not Agreed |
| 8 | Oil in Navigable waters was promulgated to safeguard pollution in territorial waters of ND and has been effective since operational | 18 4.5% | 35 8.8% | 98 24.5% | 187 46.8% | 62 15.5% | 2.40 | Not Agreed |
| 9 | Harmful waste SP was enacted to apprehend illegal trading on hazardous/harmful wastes along the water bodies and has been effective since enactment | 16 4.0% | 35 8.8% | 102 25.5% | 187 46.8% | 60 15.0% | 2.40 | Not Agreed |
| 10 | Land use Act was enacted to bequeath ownership of land from community to the government and has been an instrument of land administration & | 164 41.0% | 72 18.0% | 63 15.8% | 59 14.8% | 42 10.5% | 3.64 | Agreed |

ownership of oil wealth in ND

Source: Researcher's Computation, 2020

SA – Strongly Agree; A – Agree; D – Disagree; SD – Strongly Agree; Und – Undecided; WA – Weighted Average; R - Remark

Table 4: Nature and Types of Environmental Laws & Regulations in Niger Delta (ND) (NGOs/Companies)

| S/N | LAWS & REGULATIONS | SA | A | D | SD | UND | WA | R |
|-----|---|-------------|-------------|-------------|-------------|-----------|------|------------|
| 1 | The 1999 Constitution guarantees the protection of lives and individual right, but it is not the case in Niger Delta (ND) | 57 57.0% | 43 43.0% | 0 0.0% | 0 0.0% | 0 0.0% | 4.57 | Agreed |
| 2 | Oil pipeline Act was enacted to regulate oil/gas company pipeline routes, and has fulfilled this mandate in the ND region | 58 58.0% | 21 21.0% | 11 11.0% | 10 10.0% | 0 0.0% | 4.27 | Agreed |
| 3 | Petroleum Act was promulgated to protect the rights of oil/gas companies activities and in case of pollution restore the impacted areas | 50 50.0% | 28 28.0% | 16 16.0% | 6 6.0% | 0 0.0% | 4.22 | Agreed |
| 4 | EIA was enacted to delineate projects that requires mandatory assessment, and has achieved this core mandate in ND region | 66 66.0% | 34 34.0% | 0 0.0% | 0 0.0% | 0 0.0% | 4.66 | Agreed |
| 5 | AGASPIN Act was promulgated to regulate operations of oil/gas companies offshore/onshore and has been effective in this purpose in the ND | 48 48.0% | 25 25.0% | 16 16.0% | 11 11.0% | 0 0.0% | 4.10 | Agreed |
| 6 | NESREA Act was enacted to enforce compliance to environmental laws in oil/gas industry; the agency have been effective since creation | 14 14.0% | 22 22.0% | 51 51.0% | 11 11.0% | 2 2.0% | 3.35 | Not Agreed |
| 7 | Oil/gas re-injection Act was enacted to prevent gas flaring in the ND and has achieved this core mandate | 11 11.0% | 17 17.0% | 53 53.0% | 14 14.0% | 5 5.0% | 3.15 | Not Agreed |
| 8 | Oil in Navigable waters was promulgated to safeguard pollution in territorial waters of ND and has been effective since operational | 47 47.0% | 24 24.0% | 14 14.0% | 15 15.0% | 0 0.0% | 4.03 | Agreed |
| 9 | Harmful waste SP was enacted to apprehend illegal trading on hazardous/harmful wastes along the water bodies and has been effective since enactment | 10 10.0% | 20 20.0% | 26 26.0% | 43 43.0% | 1 1.0% | 2.95 | Not Agreed |
| 10 | Land use Act was enacted to bequeath ownership of land from community to the government and has been an instrument of land administration & ownership of oil wealth in ND | 54 54.0% | 46 46.0% | 0 0.0% | 0 0.0% | 0 0.0% | 4.54 | Agreed |

Source: Researcher's Computation, 2020

SA – Strongly Agree; A – Agree; D – Disagree; SD – Strongly Agree; Und – Undecided; WA – Weighted Average; R - Remark

Analysis of the Compliance of Oil & Gas Companies in Niger Delta

The question interrogating the compliance of Oil and Gas Companies on environmental laws in the Niger Delta Region shows thus; for residents; oil and gas companies /NGOs are displayed on Tables 5 and 6. The result revealed that all weighted mean average values were high enough to accept all statements. Thus, environmental laws in Niger Delta and Nigeria and the nation at large are faced with enormous challenges ranging from the lack of trust in the administration of the Joint Venture Agreement by the IOCs and government of Nigeria and the complete evasiveness to the laws and regulations by the oil and gas companies

as shown in the tables interrogating such questions. For instance; in question (1) Joint venture partnership between Nigerian government and IOCs was a business agreement; about (290) (72.5%) respondents of residents strongly agreed; for question (2) joint venture was created to entrench mutual relationship between IOCs and the government; about 321 (57.8%) of resident respondents strongly agreed. Also question (3) IOCs took advantage of the lack of expertise /manpower in the country oil and gas industry to exploit the region; about 196(49.0%) resident respondents strongly agreed. More so, question (4) Oil and gas companies’ laws or regulations created for the IOCs to operate in the region; about 172 (43.0%) of respondents strongly agreed. The question (5) on Joint Venture Agreement being executed without following rules of engagement; about 170(42.5%) respondents strongly agreed. Also question (6) Poor technological /infrastructural facilities were impediments for the development of oil and gas sector in the region; about 193((48.3%) strongly agreed. Question (7) on the poor development of the indigenous companies in the region to engage in oil and gas sector; about 168(42.0%) of residents attested to it strongly. The question (8) on Joint Venture Agreement could not be realized dues to lack of trust on both parties to the agreement; about 178(43.5%) of residents strongly agreed to the assertion. Furthermore; the question (9) on Poor government policy and strategy as impediments to the growth of oil and gas sector in the region; about 157(38.0%) respondents from the host communities agreed strongly agreed. The question (10) on Poor staffing, corruption, poverty as impediments to the enforcement of the oil and gas laws and regulation; about 166 (41.5%) strongly agreed to the assertion.

On the other hand, these questions were posed to the oil companies /NGOs; the weighted averages were also all high and were accepted as shown in tables 5 and 6 as shown.

Table 5: Analysis of Compliance of Oil & gas companies in Niger Delta (ND)(Residents)

| S/N | LAW & REGULATIONS | SA | A | D | SD | UND | WA | R |
|-----|--|--------------|--------------|-------------|-------------|-------------|------|--------|
| 1 | The joint venture partnership between NNPC (on behalf of Nigeria) and IOCs are public partnership ventures | 110 27.5% | 290 72.5% | 0 0.0% | 0 0.0% | 0 0.0% | 4.27 | Agreed |
| 2 | The oil and gas JVA was created to entrench mutual relationship and co-tenancy between the IOCs and Nigeria. | 231 57.8% | 79 19.8% | 41 10.3% | 38 9.5% | 11 2.8% | 4.20 | Agreed |
| 3 | The IOCs took advantage of the lack of expertise/manpower in Nigeria in ... | 196 49.0% | 117 29.3% | 41 10.3% | 18 4.5% | 28 7.0% | 4.09 | Agreed |
| 4 | The oil and gas laws in Nigeria created leeway for the IOCs to operate with trade-off... | 172 43.0% | 145 36.3% | 37 9.3% | 18 4.5% | 28 7.0% | 4.04 | Agreed |
| 5 | The JVA partnership agreement was executed by the IOCs without keeping to.. | 170 42.5% | 137 34.3% | 47 11.8% | 18 4.5% | 28 7.0% | 4.01 | Agreed |
| 6 | The poor technological/infrastructural development in Nigeria oil/gas ... | 193 48.3% | 137 34.3% | 24 6.0% | 18 4.5% | 28 7.0% | 4.12 | Agreed |
| 7 | The indigenous oil/gas companies in Nigeria (NNPC) did not demonstrate... | 168 42.0% | 112 28.0% | 74 18.5% | 18 4.5% | 28 7.0% | 3.93 | Agreed |
| 8 | The goal of JVA could not be realized because of lack of trust by the parties... | 174 43.5% | 136 34.0% | 44 11.0% | 18 4.5% | 28 7.0% | 4.03 | Agreed |
| 9 | Poor governmental policy/strategy in the development and growth of oil/gas... | 152 38.0% | 90 22.5% | 62 15.5% | 40 10.0% | 56 14.0% | 3.60 | Agreed |
| 10 | Poor staffing, corruption and poverty in the system has impeded the enforcement. | 166 41.5% | 150 37.5% | 46 11.5% | 10 2.5% | 28 7.0% | 4.04 | Agreed |

Source: Researcher’s Computation, 2020

SA – Strongly Agree; A – Agree; D – Disagree; SD – Strongly Agree; Und – Undecided; WA – Weighted Average; R - Remark

Table 6: Analysis of Compliance of Oil & gas companies in ND (NGOs/Companies)

| S/N | LAWS & REGULATIONS | SA | A | D | SD | UND | WA | R |
|-----|--|-------------|-------------|-------------|-------------|-------------|------|--------|
| 1 | The joint venture partnership between NNPC (on behalf of Nigeria) and IOCs are public partnership ventures | 59 59.0% | 40 40.0% | 1 1.0% | 0 0.0% | 0 0.0% | 4.58 | Agreed |
| 2 | The oil and gas JVA was created to entrench mutual relationship and co-tenancy between the IOCs and Nigeria. | 44 44.0% | 56 56.0% | 0 0.0% | 0 0.0% | 0 0.0% | 4.44 | Agreed |
| 3 | The IOCs took advantage of the lack of expertise/manpower in Nigeria in ... | 15 15.0% | 36 36.0% | 39 39.0% | 10 10.0% | 0 0.0% | 3.56 | Agreed |
| 4 | The oil and gas laws in Nigeria created leeway for the IOCs to operate with trade-off... | 36 36.0% | 35 35.0% | 21 21.0% | 8 8.0% | 0 0.0% | 3.99 | Agreed |
| 5 | The JVA partnership agreement was executed by the IOCs without keeping to.. | 32 32.0% | 32 32.0% | 23 23.0% | 11 11.0% | 2 2.0% | 3.81 | Agreed |
| 6 | The poor technological/infrastructural development in Nigeria oil/gas ... | 28 28.0% | 38 38.0% | 20 20.0% | 13 13.0% | 1 1.0% | 3.79 | Agreed |
| 7 | The indigenous oil/gas companies in Nigeria (NNPC) did not demonstrate... | 17 17.0% | 48 48.0% | 13 13.0% | 20 20.0% | 2 2.0% | 3.58 | Agreed |
| 8 | The goal of JVA could not be realized because of lack of trust by the parties... | 45 45.0% | 32 32.0% | 8 8.0% | 14 14.0% | 1 1.0% | 4.06 | Agreed |
| 9 | Poor governmental policy/strategy in the development and growth of oil/gas... | 35 35.0% | 30 30.0% | 1 1.0% | 20 20.0% | 14 14.0% | 3.52 | Agreed |
| 10 | Poor staffing, corruption and poverty in the system has impeded the enforcement. | 38 38.0% | 33 33.0% | 1 1.0% | 18 18.0% | 10 10.0% | 3.71 | Agreed |

Source: Researcher's Computation, 2020

SA – Strongly Agree; A – Agree; D – Disagree; SD – Strongly Agree; Und – Undecided; WA – Weighted Average; R – Remark

Hypothesis 1: The hypothesis was tested using Analysis of Variance (ANOVA) Statistical test.

H₀: There is no significant variation in the enforcement of environmental laws or regulation by oil and gas industry in the braced states of the Niger Delta.

H₁: There is a significant variation in the enforcement of environmental laws or regulation by oil and gas industry in the braced states of the Niger Delta.

The results of the tested hypothesis one is displayed on Table 7, while the information on Table 8 was used for this analysis. The result showed F ratio of 1.350 at probability value of 95% (0.05) of degrees of freedom (Df) 59 was 0.258. Since, the level of significance of 0.258 was higher than the p-value of 0.05, the Null hypothesis (H₀) was retained for the test. Therefore, there is no significant variation in the enforcement of environmental laws or regulation by oil and gas industry in the braced states of the Niger Delta. The Duncan Post Hoc analysis displayed on Table 9 was used to show the pattern of variation using their means for groups in homogenous sets (range between 3.43 and 3.79). Thus, the pattern of variation, that is difference between means were not significant (0.094) for the study.

Table 7 Weighted Average across BRACED States

| S/N | LAWS & REGULATIONS | B | R | A | C | E | D |
|-----|--|------|------|------|------|------|------|
| 1 | Enforcement agencies lack the expertise/equipment to enforce laws... | 3.92 | 3.96 | 3.83 | 3.79 | 3.75 | 3.81 |
| 2 | Overlapping in the functions of the agencies charged with enforcement... | 3.92 | 4.04 | 3.87 | 3.82 | 3.78 | 3.84 |
| 3 | Lack of funding by the government to the enforcement agencies (NESREA... | 3.85 | 3.94 | 3.69 | 3.79 | 3.75 | 3.81 |
| 4 | Weak enforcement mechanism/lack of continuity by government... | 3.69 | 3.53 | 4.02 | 2.51 | 2.42 | 2.52 |
| 5 | Proliferation of agencies and over bearing influence of one agency over the other... | 3.28 | 3.20 | 3.75 | 2.56 | 2.73 | 3.06 |
| 6 | Attitudinal-problem/poor policy implementation by government... | 3.76 | 3.55 | 3.94 | 3.31 | 3.20 | 3.26 |
| 7 | Corruption and poverty among staff of agencies of government | 3.61 | 3.34 | 3.78 | 3.10 | 3.00 | 2.97 |
| 8 | Obsolete-laws/regulations/weak sanctions/penalty on defaulters (IOCs) | 4.11 | 3.88 | 4.02 | 4.05 | 3.97 | 3.90 |
| 9 | Lack of stakeholder/team spirit by staff of enforcement agencies in Nigeria | 3.82 | 3.68 | 3.62 | 3.97 | 3.90 | 3.81 |
| 10 | Prolonged legal cases/difficulty in prosecution of oil pollution cases ... | 3.42 | 3.30 | 3.39 | 3.82 | 3.77 | 3.77 |

Source: Researcher's computation , 2020; B – Bayelsa; R- Rivers; A-Akwa Ibom; C- Calabar; E- Edo; D-Delta

Table 8 : ANOVA Test Results

| | Sum of Squares | Df | Mean Square | F ratio | Significance at p<0.05 |
|----------------|----------------|----|-------------|---------|------------------------|
| Between Groups | 1.187 | 5 | .237 | 1.350 | 0.258 |
| Within Groups | 9.496 | 54 | .176 | | |
| Total | 10.684 | 59 | | | |

Source: Researcher's Computation, 2020

Table 9: Post Hoc Results for Pattern of Variation

| Duncan ^a | | Subset for alpha = 0.05 | |
|---------------------|----|-------------------------|-------|
| BRACED STATES | N | 1 | |
| Edo | 10 | | 3.43 |
| Cross River | 10 | | 3.47 |
| Delta | 10 | | 3.47 |
| Rivers | 10 | | 3.64 |
| Bayelsa | 10 | | 3.74 |
| Akwa Ibom | 10 | | 3.79 |
| Sig. | | | 0.094 |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 10.000.

Hypothesis 2

H₀: There is no significant variation in compliance of oil and gas companies to the joint venture regulations.

H₁: There is a significant variation in compliance of oil and gas companies to the joint venture regulations.

The results of the tested hypothesis two are displayed on Table 10, while the information on Table 11 was used for this analysis. The result showed F ratio of 3.415 at probability value of 95% (0.05) of degrees of freedom (Df) 59 was 0.009. Since, the level of significance of 0.009 was lower than the p-value of 0.05, the Null hypothesis (H₀) was rejected for the test while the alternative hypothesis (H₁) was accepted. Therefore, there is a significant variation in compliance of oil and gas companies to the joint venture regulations in the study area. The Duncan Post Hoc analysis displayed on Table 12 was used to show the pattern of variation using their means for groups in homogenous sets and the means ranged between 3.8350 and 4.1880). However, the pattern of variation, based on differences between means of observations was not significant (0.052) for the study.

Table 10: Weighted Average Across BRACED States

| S/N | LAWS & REGULATIONS | B | R | A | C | E | D |
|-----|--|------|------|------|------|------|------|
| 1 | The joint venture partnership between NNPC (on behalf of Nigeria) and IOCs are public partnership ventures | 4.41 | 4.25 | 4.58 | 4.10 | 4.10 | 4.10 |
| 2 | The oil and gas JVA was created to entrench mutual relationship and co-tenancy between the IOCs and Nigeria. | 4.19 | 4.28 | 4.11 | 4.21 | 4.15 | 4.26 |
| 3 | The IOCs took advantage of the lack of expertise/manpower in Nigeria in ... | 4.03 | 4.15 | 3.84 | 4.18 | 4.14 | 4.26 |
| 4 | The oil and gas laws in Nigeria created leeway for the IOCs to operate with trade-off... | 3.97 | 4.12 | 3.77 | 4.13 | 4.09 | 4.23 |
| 5 | The JVA partnership agreement was executed by the IOCs without keeping to.. | 3.91 | 4.09 | 3.70 | 4.13 | 4.09 | 4.23 |
| 6 | The poor technological/infrastructural development in Nigeria oil/gas ... | 4.04 | 4.16 | 3.92 | 4.23 | 4.19 | 4.29 |
| 7 | The indigenous oil/gas companies in Nigeria (NNPC) did not demonstrate... | 3.81 | 3.99 | 3.59 | 4.10 | 4.06 | 4.19 |
| 8 | The goal of JVA could not be realized because of lack of trust by the parties... | 3.96 | 4.10 | 3.73 | 4.13 | 4.09 | 4.23 |
| 9 | Poor governmental policy/strategy in the development and growth of oil/gas... | 3.53 | 3.71 | 3.33 | 3.67 | 3.66 | 3.77 |
| 10 | Poor staffing, corruption and poverty in the system has impeded the enforcement... | 3.96 | 4.00 | 3.78 | 4.15 | 4.22 | 4.32 |

Source: Researcher's Computation, 2020.

Table 11: ANOVA Test Results

| | Sum of Squares | Df | Mean Square | F ratio | Significance at p<0.05 |
|----------------|----------------|----|-------------|---------|------------------------|
| Between Groups | .748 | 5 | .150 | 3.415 | .009 |
| Within Groups | 2.364 | 54 | .044 | | |
| Total | 3.112 | 59 | | | |

Source: Researcher’s Analysis, 2020

Table 12: Post Hoc results for pattern of Variation

| Duncan ^a | | | | |
|---------------------|----|-------------------------|--------|--------|
| BRACED STATES | N | Subset for alpha = 0.05 | | |
| | | 1 | 2 | |
| Akwa Ibom | 10 | 3.8350 | | |
| Bayelsa | 10 | 3.9810 | 3.9810 | |
| Edo | 10 | | | 4.0790 |
| Rivers | 10 | | | 4.0850 |
| Cross River | 10 | | | 4.1030 |
| Delta | 10 | | | 4.1880 |
| Sig. | | | .125 | .052 |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 10.000.

8. Conclusion

The compliance of oil and gas companies to environmental laws and regulations in the Niger Region revealed that all weighted mean average values were high enough to accept all statements. Thus, environmental laws in Niger Delta and Nigeria at large are faced with enormous challenges ranging from the lack of trust in the administration of the Joint Venture Agreement by the IOCs and government of Nigeria and the complete evasion to the laws and regulations by the oil and gas companies. For example, the Joint Venture Agreement could not be realized due to lack of trust on both parties to the agreement. Poor government policy and strategy was an impediment to the growth of oil and gas sector in the region as most respondents from the host communities agreed strongly to the statement posed. Some studies that support this assertion are; the study by Raji and Abejide (2014) on some selected oil and gas regulations in Nigeria vis-à-vis problems of compliance as encountered by oil corporations in the Niger Delta region, argued that the lack of institutional structure for enforcement of petroleum regulations in the oil producing communities of Niger Delta, particularly in Ijaw, Ogoni land, and other south south region serves as major factor that led to the environmental struggle against the Federal government in the area from the 1990s. Furthermore, Ogbonnaya (2011) on the study of Environmental Laws and Under-development in the Niger Delta Region of Nigeria stated that the nature of oil and gas industry has induced environmental crisis and its attendant socio-economic consequences in the people of Niger Delta Region. The study argues that due to the lackadaisical attitude of governments towards the enforcement of environmental laws, oil firms have taken undue advantage to perpetuate substandard environmental practices with complete evasion of the laws and regulations.

9. Recommendations

1. The Joint Venture Agreement (JVA) entered into by Nigerian government and the International Oil and Gas companies (IOCs) was purely a business venture which the (IOC) exploited to their own advantage. The (IOC)s operated the (JVA) to make profits, therefore they did not keep to the rules of engagement in their operations, because they failed to transfer technology to staff from their host government. The paper suggests complete hand over of the oil and gas business to indigenous companies by way of capacity building and intrastromal development in the oil producing communities in the Niger Delta.
2. The National and State's Assemblies (legislative arm) shall as a matter of urgency review all relevant environmental laws and regulations, thereby repealing all colonial laws that are obsolete and replacing such with laws with local content that will address environmental problems of the various ecological and industrial zones in the country especially the Niger Delta Region.

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