LEVEL OF ADOPTION OF SUSTAINABILITY PRACTICES AMONG LOCALLY AND FOREIGN OWNED CONSTRUCTION FIRMS IN NIGERIA DELTA

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ABSTRACT

Construction accounts for an estimated 40% of all resources consumption and produces about 40% of all wastes including greenhouse gas emissions. The quest to have sustainable development by different stakeholders in the construction industry cannot be overemphasised. Hence the aim of this research is to assess the level of adoption of sustainability practices among locally owned and foreign owned construction firms in Niger- Delta, Nigeria. Data were obtained using 1179 copies of structured questionnaire, administered through random sampling technique. The methods of data analysis were simple percentage, mean score and Mann- Whitney test. The average mean scores of 2.89 and 3.39 for locally and foreign owned construction firms respectively, indicate that the overall level of adoption of sustainability practices among locally and foreign owned firms is moderate. The P-value of 0.001 indicates that there is a significant difference in the level of adoption of sustainability practices among locally owned and foreign owned construction firms in Niger Delta, Nigeria. This study concludes that firms' ownership has significant impact on the level of adoption of sustainability practices by the construction firms in Niger Delta. This study recommends that construction firms should improve on their level of adoption of sustainability practices in Niger Delta by increasing top management support, human resource management, training and educating employees on sustainability practices and increasing the amount of resources allocated to sustainability. Government should pass into law, legislation that would make the firms to improve their level of adoption of sustainability practice in Niger Delta, Nigeria.

***KEYWORDS**: Level of adoption; sustainability practices; local; foreign; construction firms; Niger Delta*

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1.0 INTRODUCTION

The quest to have sustainable development by different stakeholders in the construction industry cannot be overemphasised. Generally, the construction industry is a primary driver of many economy in the world, and a major source of employment for the unemployed population. However, this industry is driven by energy derived from fossil fuel, accounting for 40% to 60% of the total national energy demands of the industrialized world (Obia & Obot, 2016). The problem associated with this energy consumption is the accompanying emission of deleterious gaseous pollutants and greenhouse gases that promote climate change. Besides, this high energy consumption impacts the ecology of the environment in ways that natural recovery appears far from being possible. According to Suliman & Abdelnaser (2009), construction accounts for an estimated 40% of all resources consumption and produces about 40% of all wastes including greenhouse gas emissions. The study of Ijigah, Jimoh, Aruleba and Ade (2013) also revealed major environmental impacts of building construction projects to include environmental pollution, depletion of resources and habitat destruction causing destruction of ecosystem, desertification, soil erosion and increasing material wastage. Similarly, Saroop and Allopi (2014) elucidated that, the construction industry globally, is one of the main contributors to the depletion of natural resources and a major cause of unwanted side effects such as air and water pollution, solid waste, deforestation, health hazards, global warming, and other negative consequences.

This trend of events happening in the construction industry cannot be ignored, hence the global call for sustainable development in the construction industry. The Brundtland report (United Nations, 1987) defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their needs. The report went further to attest that the central concept in sustainable development is equity, both between generations and within generations.

Sustainable construction is the application of sustainable development principles in the construction industry. Sustainable Construction (SC) is regarded as the construction sector's response to enacting sustainable development (Dania, Larsen & Yao, 2013). Hill and Bowen (1997) described sustainable construction as the responsibility of the construction sector in attaining 'sustainability'. This

is through reduction in energy, material and water usage, reduction of wastes, careful consideration of land use, air quality and indoor environment (Pearce, Ahn & HanmiGlobal, 2012). To pursue sustainable construction, the industry is expected to evolve its processes of creating the built environment. It requires continuous innovations, interventions and interdependency at various levels of society.

Construction in developing countries exemplifies a paradox. While it improves the much needed infrastructure base required for the socio-economic development they desperately need, it also has damaging consequences. Lessons from their more developed counterparts indicate that better consideration of the environment, societies and financial resources can be made in line with the tenets of sustainable development.

In most developing countries and particularly in Africa, historical legacies have resulted in unstable socio-economic conditions which have produced inadequate institutions and personnel to nurture a construction sector resisting change. Common challenges are rapid rates of urbanization, deep poverty, social inequity, low skills levels, institutional incapacity, weak governance, uncertain economic environment and environmental degradation which make development very challenging (Ofori, 1998; Du Plessis, 2007). Considering their recent rapid rate of urbanisation and the acceleration of infrastructure development, it is imperative for the developing world to prevent avoidable negative impacts of construction by latching on to the sustainability agenda (Du Plessis, 2007). Despite all the drivers of, and sustainability becoming an important focal point from a global construction perspective (Thorpe & Ryan, 2007), evidence in literature of any serious progress in this regard in developing countries is very little.

In Nigeria, the construction sector is crucial to development as it accounts for millions of jobs while providing the infrastructure required for growth. The sector has posted impressive growth rates of over ten per cent in the last few years (Federal Republic of Nigeria, 2010). The Nigerian construction industry is characterised by construction firms ranging from the Small and Medium Enterprises, to the big, technically competent multinational construction firms. Government accounts for being the largest client of the industry, though recent years have recorded increased patronage from private sector clients (Oxford Business Group, 2011).

Niger Delta region of Nigeria is severely affected by the environmental degeneration as a result of economic activities and oil exploration over the years. According to Kadafa (2012), oil exploration and exploitation which has been on- going for several decades in the Niger Delta, has had disastrous impacts on the environment in the region and has adversely affected people inhabiting that region. The study noted that the region has been rendered one of the five most severely petroleum damaged ecosystems in the world. Similarly, Ite, Ibok, Ite, and Petters (2013) observed that the bulk proven oil reserves of the region has encouraged the influx of visitors and multinational oil corporations whose operations have created serious threats to the livelihood of the coast communities in the Niger Delta region. Destruction of habitats, loss of biodiversity, ecosystem destruction, destruction of farmland to access onshore sites and marine resource areas, and water pollution all have extensive implications on the people's livelihood in the region.

Apart from the environmental degeneration suffered due to oil exploration, the fact that several construction activities which have been on to accommodate the activities and growing population, also add to the degeneration of the environment. Asad and Khalfan (2007) reported that construction has a significant effect on people's quality of life; construction outputs affect the nature, function and appearance of the towns and countryside in which people live and work.

There is this debate on whether a firm is locally or foreign owned may affect the adoption of sustainability practices. The debate over foreign ownership and sustainability practices ties in with the effect of the country where the company is located. There is a suggestion that local firms are more sensitive to their national, institutional and cultural context and may be more able to implement these practices. Evidence from studies in East Asian companies showed that sustainability practices introduced by locally owned firms fared better in terms of reducing organisational-level staff turnover than foreign-owned firms (Yalabik, Chen, Lawler, & Kim, 2008). However, Dania, Larsen, and Yao (2013), concluded that multinational firms have higher knowledge base, organization, capability, and capacity to adopt, of sustainability than indigenous construction firms. In view of this debate, this study evaluated the level of adoption of sustainability practices among locally owned and foreign

owned construction firms in Niger Delta, Nigeria. This study also tested the hypothesis which states that there is no significant difference in the level of adoption of sustainability practices among locally owned and foreign owned construction firms in Niger Delta, Nigeria.

2.0 RESEARCH METHODOLOGY

Surveying design approach was adopted for the study. Data were obtained using 1179 copies of structured questionnaire, administered through random sampling technique. Methods of data analysis were simple percentage, mean score, and Mann - Whitney test. Data were collected on a five-point scale of 1, 2, 3, 4 and 5 and were assigned to the options of very low adoption, low adoption, moderate adoption, high adoption and very high adoption respectively. The decision rule is that any sustainability practice whose mean falls between 1.0 -1.8 is of very low adoption, 1.8-2.6 is of low adoption, 2.6-3.4 is of moderate adoption 3.4-4.2 is having high adoption and 4.2-5.0 is regarded as having very high adoption (Kazaz, Manisali, & Ulubeyli, 2008). Mann -Whitney test was used to test the hypothesis which states that there is no significant difference in the level of adoption of sustainability practices among locally owned and foreign owned construction firms in Niger Delta, Nigeria.

3.0 RESULTS AND DISCUSSION

This section contains the results of the analysis of data collected for the study. It contains the descriptive results of the response rate of questionnaire, and firm characteristics. This section also contains the result of assessment of level of adoption of sustainability practices among locally owned and foreign owned construction firms in Niger- Delta, Nigeria and the result of the hypothesis.

3.1 Questionnaire Distribution and Response in the Study

One of the research instrument used in this study was structured questionnaire. The questionnaire was administered among the construction firms operating in Niger Delta, Nigeria. The results of analysis were presented in Table 1.

Table 1 showed that the number of questionnaire administered to the construction firms in Niger Delta were 117, 139, 97, 143, 133, 149, 105, 142, and 154 in Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, and Rivers state respectively. From the questionnaire distributed, the response rate ranges between 76.1% and 94.7%. Delta state received the highest response rate of 94.7% while Abia State got the least rate of 76.1 %. In all, an overall response rate of 83.2% was achieved. Groves (2006) noted that a response rate of at least 50 percent is considered adequate for analysis and reporting, a response of 60 percent is good and a response rate of 70 percent is very good. As a guide, researchers typically seek response rates of at least 70% to feel confident that their sample is representative of the sample frame. Hence, the overall response rate of 83.2% in this study is considered very good and adequate.

3.2 Firm Characteristics

Firms' characteristics comprised of age of construction firms, location of construction firms, ownership of construction firms and size of construction firms.

3.3 Age of Construction Firms

The analysis of the age of construction firms that were sampled in this study possessed showed that work experience of the firms ranged between the intervals of 1-5, 6-10, 11-15, 16-20 and above 20 years with their percentage distribution of 1%, 3.8%, 16.4%, 40.9% and 37.9% respectively. Table 2 reveals that majority of the construction firms have age ranging between 16-20. Table 2 also shows that more than 95% of the firms have work experience above ten (10) years. It therefore implies that the work experiences of the construction firms are adequate and their responses can be relied on.

Table 1 Questionnaire distribution and response rate

S/N	States	Number of questionnaire administered on construction firms(No)	Number of questionnaire returned (No)	Percentage of questionnaire returned (%)
1	Abia	117	89	76.1
2	Akwa Ibom	139	113	81.3
3	Bayelsa	97	85	87.6
4	Cross River	143	112	78.3
5	Delta	133	126	94.7
6	Edo	149	114	76.5
7	Imo	105	92	87.6
8	Ondo	142	109	76.8
9	Rivers	154	140	90.1
10	TOTAL	1179	980	
11	Average of the response Rate (%)			83.2

Table 2 Age of construction firms

Age of Firms (Years)	Frequency(No)	Valid Percent (%)	Cumulative Percent (%)
1-5	10	1.0	1.0
6-10	37	3.8	4.8
11-15	161	16.4	21.2
16-20	401	40.9	62.1
Above 20	371	37.9	100.0
Total	980	100.0	

3.4 Location of Construction Firms

Table 3 shows the distribution of construction firms in each state in Niger Delta, Nigeria. The percent of firms in Abia, Akwa Ibom, Bayelsa and Cross river states are 9.1%, 11.5%, 8.7% and 11.4%. Others are Delta, Edo, Imo, Ondo and Rivers with their percents of 12.9%, 11.6%, 9.4%, 11.1% and 14.3% respectively. Table 3 shows a good distribution of the construction firms among the states in Niger Delta. This implies that the results from this study represents the situation in Niger Delta and can be relied on.

Table 3 Location of construction firms

States	Frequency(NO)	Valid Percent (%)	Cumulative Percent (%)
Abia state	89	9.1	9.1
Akwa Ibom state	113	11.5	20.6
Bayelsa state	85	8.7	29.3
Crossriver state	112	11.4	40.7
Delta state	126	12.9	53.6
Edo state	114	11.6	65.2
Imo state	92	9.4	74.6
Ondo state	109	11.1	85.7
Rivers state	140	14.3	100.0
Total	980	100.0	

3.5 Ownership of Construction Firms

The result of analysis on Table 4 shows that the locally owned construction firms account for 96.4% of the total number of firms considered in this study while the foreign owned firms account for 3.6% of the total number construction under consideration in this study. This clearly shows that majority of the construction firms operating in Niger Delta are predominantly locally owned firms.

Table 4 Ownership of construction firms

Ownership of Firms	Frequency(No)	Valid Percent (%)	Cumulative Percent (%)
Locally owned	945	96.4	96.4
Foreign owned	35	3.6	100.0
Total	980	100.0	

3.6 Level of Adoption of Sustainability Practices among Locally Owned and Foreign Owned Construction Firms in Niger Delta, Nigeria

Table 5 shows the level of adoption of sustainability practices among construction firms based on ownership of the firms. The average mean scores of 3.59 and 4.07 for locally and foreign owned firms respectively, indicate that there is high level of adoption of sustainable leadership traits among locally and foreign owned construction firms in Niger Delta.

Table 5 shows that the adoption of brainstorming at firm level is high among locally and foreign construction firms in Niger Delta. It also reveals that foreign owned firms moderately adopted communities of practice while its level of adoption is low among locally owned firms. It was also revealed that both locally owned firms and foreign owned firms moderately adopted face to face interaction, mentoring, recruitment and training. However, the level of apprenticeship is low among locally owned firms while apprenticeship is moderately adopted by foreign owned firms. The average mean scores of 2.81 and 3.23 for locally and foreign owned firms respectively indicate that there is moderate level of adoption of knowledge management practices among locally and foreign owned construction firms in Niger Delta.

The result of analysis shows that the level of adoption of organisational innovativeness, and organisational culture practices is moderate among locally owned construction firms whereas there is high level of adoption of organisational innovativeness, and organisational culture practices among foreign owned construction firms in Niger Delta, Nigeria. In addition, the level of adoption of corporate governance among locally owned firms is low while its level of adoption among foreign owned construction firms in Niger Delta is moderate. The result of analysis also shows that the level of adoption of stakeholders' engagement practices, and transparency and measurement is moderate among locally and foreign owned construction firms in Niger Delta.

Furthermore, the level of adoption of corporate social responsibility, employment practices and the level of environmental protections measures among locally owned construction firms in Niger Delta is low. Also, there is moderate level of adoption of corporate social responsibility, employment practices and the level of environmental protections measures among foreign owned construction firms in Niger Delta. The average mean scores of 2.89 and 3.39 for locally and foreign owned construction firms respectively, indicate that the overall level of adoption of sustainability practices among locally and foreign owned firms is moderate. This study is in contrast with Waziri, Yusof and Osmadi (2015) who stated that sustainable practices is slightly implemented at firm level.

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Table 5 Level of adoption of sustainability practices based on ownership of firms

Sustainability Practices	Locally Owned N=945			Foreign Owned N=35			Combined N=980		
	Sum	Mean	Remark	Sum	Mean	Remark	Sum	Mean	Remark
Leadership in Construction: Charismatic Leadership-Idealised Influence									
emphasizes the importance of having a strong sense of mission	3448.00	3.65	H.L.AD	145.00	4.14	H.L.AD	3593.00	3.67	H.L.AD
goes beyond self-interest for the good of the organisation	3432.00	3.63	H.L.AD	147.00	4.20	H.L.AD	3579.00	3.65	H.L.AD
encourages organisational members to think beyond the immediate	3428.00	3.63	H.L.AD	146.00	4.17	H.L.AD	3574.00	3.65	H.L.AD
Charismatic leadership-inspirational motivation									
displays a sense of power and confidence	3886.00	4.11	H.L.AD	141.00	4.03	H.L.AD	4027.00	4.11	H.L.AD
articulates a compelling vision of the future	3479.00	3.68	H.L.AD	144.00	4.11	H.L.AD	3623.00	3.70	H.L.AD
expresses confidence that goals will be achieved	3484.00	3.69	H.L.AD	141.00	4.03	H.L.AD	3625.00	3.70	H.L.AD
Intellectual stimulation									
seeks a broad range of perspectives when solving problems	3362.00	3.56	H.L.AD	140.00	4.00	H.L.AD	3502.00	3.57	H.L.AD
encourages others to challenge the status quo	3437.00	3.64	H.L.AD	141.00	4.03	H.L.AD	3578.00	3.65	H.L.AD
Individual consideration									
spends time teaching and coaching organisation members	3296.00	3.49	H.L.AD	135.00	3.86	H.L.AD	3431.00	3.50	H.L.AD
focuses on developing the strength of team members	3319.00	3.51	H.L.AD	142.00	4.06	H.L.AD	3461.00	3.53	H.L.AD
seeks that the interest of employees are given due consideration	3354.00	3.55	H.L.AD	149.00	4.26	V.H.L.AD	3503.00	3.57	H.L.AD
Level of Adoption of Leadership In Construction among Firms In Niger delta	3389.174	3.59	H.L.AD	142.5217	4.07	H.L.AD	3531.696	3.60	H.L.AD
Knowledge management practices									
Brainstorming	3467.00	3.67	H.L.AD	145.00	4.14	H.L.AD	3612.00	3.69	H.L.AD
Face –to- face interaction	2994.00	3.17	M.L.AD	127.00	3.63	H.L.AD	3121.00	3.18	M.L.AD
Mentoring	2610.00	2.76	M.L.AD	115.00	3.29	M.L.AD	2725.00	2.78	M.L.AD

Table 5 Continued

Sustainability Practices	Locally Owned N=945			Foreign Owned N=35			Combined N=980		
	Sum	Mean	Remark	Sum	Mean	Remark	Sum	Mean	Remark
Level of Adoption of Knowledge Management Practices among Firms In Niger delta	2652.286	2.81	M.L.AD	113.1429	3.23	M.L.AD	2765.429	2.82	M.L.AD
Organisational innovativeness: Employee strategies									
Recruiting experienced employee	2809.00	2.97	M.L.AD	120.00	3.43	H.L.AD	2929.00	2.99	M.L.AD
Actively encouraging your employees to seek out improvements and share ideas	3309.00	3.50	H.L.AD	125.00	3.57	H.L.AD	3434.00	3.50	H.L.AD
Providing or supporting training programs for your Employees	3037.00	3.21	M.L.AD	117.00	3.34	M.L.AD	3154.00	3.22	M.L.AD
Technology strategies									
Enhancing your business's technical capabilities	3072.00	3.25	M.L.AD	123.00	3.51	H.L.AD	3195.00	3.26	M.L.AD
Protecting your business's intellectual property	3235.00	3.42	M.L.AD	128.00	3.66	H.L.AD	3363.00	3.43	H.L.AD
Participating in the development of industry standards and practices	3162.00	3.35	M.L.AD	129.00	3.69	H.L.AD	3291.00	3.36	M.L.AD
Marketing strategies									
Building relationships with existing clients	3299.00	3.49	H.L.AD	132.00	3.77	H.L.AD	3431.00	3.50	H.L.AD
Delivering products/services which reduce your clients' costs	3373.00	3.57	H.L.AD	134.00	3.83	H.L.AD	3507.00	3.58	H.L.AD
Attracting new clients/customers	3199.00	3.39	M.L.AD	129.00	3.69	H.L.AD	3328.00	3.40	H.L.AD
Knowledge strategies									
Actively monitoring international best practice	3500.00	3.70	H.L.AD	126.00	3.60	H.L.AD	3626.00	3.70	H.L.AD
Maintaining a formal system for transferring project learnings into our continuous business processes	3237.00	3.43	H.L.AD	133.00	3.80	H.L.AD	3370.00	3.44	H.L.AD
Measuring how well our changes have worked	3233.00	3.42	H.L.AD	132.00	3.77	H.L.AD	3365.00	3.43	H.L.AD
Relationship strategies									
Rewarding staff for maintaining networking linkages with strategically useful industry participants	3195.00	3.38	M.L.AD	122.00	3.49	H.L.AD	3317.00	3.38	M.L.AD
Pursuing partnering on projects	3195.00	3.38	M.L.AD	127.00	3.63	H.L.AD	3322.00	3.39	M.L.AD
Pursuing alliance projects	3140.00	3.32	M.L.AD	130.00	3.71	H.L.AD	3270.00	3.34	M.L.AD

Table 5 Continued

Sustainability Practices	Locally Owned N=945			Foreign Owned N=35			Combined N=980		
	Sum	Mean	Remark	Sum	Mean	Remark	Sum	Mean	Remark
Level of Adoption of Organisational Innovativeness Among Firms In Niger delta	3111.043	3.29	M.L.AD	125.3913	3.58	H.L.AD	3236.435	3.30	M.L.AD
Organisational culture practices									
Power-distance: degree to which power is expected to be equally shared.	3171.00	3.36	M.L.AD	135.00	3.86	H.L.AD	3306.00	3.37	M.L.AD
Individualism - collectivism, degree to which individuals are encouraged to be integrated into groups.	3112.00	3.29	M.L.AD	125.00	3.57	H.L.AD	3237.00	3.30	M.L.AD
Performance orientation: degree to which rewards are encouraged for performance improvement and excellence	3144.00	3.33	M.L.AD	124.00	3.54	H.L.AD	3268.00	3.33	M.L.AD
Level of Adoption of Organisational Culture Practices Among Firms in Niger delta	3062.25	3.24	M.L.AD	127	3.63	H.L.AD	3189.25	3.25	M.L.AD
Corporate governance: shareholders rights									
Secure ownership registration	3770.00	3.99	H.L.AD	141.00	4.03	H.L.AD	3911.00	3.99	H.L.AD
Shareholder input on certain key decisions is possible	2145.00	2.27	L.L.AD	100.00	2.86	M.L.AD	2245.00	2.29	L.L.AD
Ownership rights of all shareholders are facilitated	2183.00	2.31	L.L.AD	108.00	3.09	M.L.AD	2291.00	2.34	L.L.AD
Stakeholders in governance									
Legal and mutually established rights of stakeholders are respected	2418.00	2.56	L.L.AD	105.00	3.00	M.L.AD	2523.00	2.57	L.L.AD
Performance-enhancing mechanisms for employee participation are permitted	2255.00	2.39	L.L.AD	109.00	3.11	M.L.AD	2364.00	2.41	L.L.AD
Stakeholders have a right to access to timely, relevant, and reliable information on governance issues in which they have a right to participate	2329.00	2.46	L.L.AD	114.00	3.26	M.L.AD	2443.00	2.49	L.L.AD
Transparency and disclosure									
Disclosure of Company objectives	2504.00	2.65	M.L.AD	117.00	3.34	M.L.AD	2621.00	2.67	M.L.AD
Disclosure of Foreseeable risks	2565.00	2.71	M.L.AD	113.00	3.23	M.L.AD	2678.00	2.73	M.L.AD
Disclosure of Issues regarding employees and other stakeholders	2398.00	2.54	L.L.AD	116.00	3.31	M.L.AD	2514.00	2.57	L.L.AD

Table 5 Continued

Sustainability Practices	Locally Owned N=945			Foreign Owned N=35			Combined N=980		
	Sum	**Mean**	**Remark**	**Sum**	**Mean**	**Remark**	**Sum**	**Mean**	**Remark**
Board members act in the interest of the company and its shareholders	2586.00	2.74	M.L.AD	116.00	3.31	M.L.AD	2702.00	2.76	M.L.AD
The board applies high ethical standards	2516.00	2.66	M.L.AD	116.00	3.31	M.L.AD	2632.00	2.69	M.L.AD
The board takes into account the interests of other stakeholders	2510.00	2.66	M.L.AD	142.00	4.06	H.L.AD	2652.00	2.71	M.L.AD
Level of adoption of corporate governance among firms in Niger delta	2297.375	2.43	L.L.AD	110.05	3.14	M.L.AD	2407.425	2.46	L.L.AD
Stakeholders engagement									
Opportunity risk examinations	3202.00	3.39	M.L.AD	130.00	3.71	H.L.AD	3332.00	3.40	H.L.AD
Common understanding	2959.00	3.13	M.L.AD	127.00	3.63	H.L.AD	3086.00	3.15	M.L.AD
Setting of targets for stakeholders	3170.00	3.35	M.L.AD	131.00	3.74	H.L.AD	3301.00	3.37	M.L.AD
Transparency and Measurement									
Information collection review	3057.00	3.23	M.L.AD	126.00	3.60	H.L.AD	3183.00	3.25	M.L.AD
Mapping against Standards	3249.00	3.44	H.L.AD	131.00	3.74	H.L.AD	3380.00	3.45	H.L.AD
Sample site visits	3135.00	3.32	M.L.AD	120.00	3.43	H.L.AD	3255.00	3.32	M.L.AD
Level of adoption of transparency and measurement among firms in Niger delta	2731.308	2.89	M.L.AD	117.1538	3.35	M.L.AD	2848.462	2.91	M.L.AD
Corporate social responsibility									
Provision of employment opportunities	2849.00	3.01	M.L.AD	116.00	3.31	M.L.AD	2965.00	3.03	M.L.AD
Infrastructural development	2528.00	2.68	M.L.AD	107.00	3.06	M.L.AD	2635.00	2.69	M.L.AD
Human capital development	2739.00	2.90	M.L.AD	111.00	3.17	M.L.AD	2850.00	2.91	M.L.AD
Level of adoption of corporate social responsibility among firms in Niger delta	2397.6	2.54	L.L.AD	102.7	2.93	M.L.AD	2500.3	2.55	L.L.AD
Employment practices									
Training of personnel	2498.00	2.64	M.L.AD	109.00	3.11	M.L.AD	2607.00	2.66	M.L.AD
Wages/salary induced motivation	2310.00	2.44	L.L.AD	100.00	2.86	M.L.AD	2410.00	2.46	L.L.AD
Teamwork	2656.00	2.81	L.L.AD	118.00	3.37	M.L.AD	2774.00	2.83	M.L.AD

Table 5 Continued

Sustainability Practices	Locally Owned N=945			Foreign Owned N=35			Combined N=980		
	Sum	**Mean**	**Remark**	**Sum**	**Mean**	**Remark**	**Sum**	**Mean**	**Remark**
Level of Adoption of Employment Practices among Firms in Niger delta	2314.6	2.45	L.L.AD	105.2	3.01	M.L.AD	2419.8	2.47	L.L.AD
Protection of the Environment									
Building designs, construction practices and technologies that are environmentally friendly and sustainable	3269.00	3.46	H.L.AD	138.00	3.94	H.L.AD	3407.00	3.48	H.L.AD
Level of adoption of protection of the environment among firms in niger Delta	2357.727	2.49	L.L.AD	106.5455	3.04	M.L.AD	2448.576	2.51	L.L.AD
Level of adoption of sustainability practices among construction firms in Niger delta based on ownership of firms		2.89	M.L.AD		3.39	M.L.AD		2.91	M.L.AD

V.L.L.AD- Very Low Level of Adoption, L.L.AD - Low Level of Adoption, M.L.AD - Moderate Level of Adoption, H.L.AD - High Level of Adoption, V.H.L.AD- Very High Level of Adoption

3.7 Mann Whitney U Test for Comparing Level of Adoption of Sustainability Practices among Locally Owned and Foreign Owned Construction Firms in Niger Delta, Nigeria

The result of Mann- Whitney U test in Table 6 shows that the P- value is 0.001. This value is less than the 0.05 significant level set for the test. This implies that there is significant difference in the level of adoption of sustainability practices among locally owned construction firms and foreign owned construction firms in Niger Delta. The result in Table 6 indicates that foreign owned construction firms have higher level of adoption of sustainability because it is the group with the highest mean rank. From these data, it can be concluded that the level of adoption of sustainability practices among foreign owned construction firms is statistically significantly higher than the level of adoption of sustainability practices among locally owned construction firms (U = 6541.000, p = .001).

The result indicates that foreign owned construction firms have higher level of adoption of sustainability because it is the group with the highest mean rank. From these data, it can be concluded that the level of adoption of sustainability practices among foreign owned construction firms is statistically significantly higher than the level of adoption of sustainability practices among locally owned construction firms (U = 6541.000, p = .001). This study is in agreement with Dania Larsen, and Yao (2013) who concluded that multinational firms have higher capacity to adopt sustainability practices than indigenous construction firms.

Table 6 Mann Whitney U Test for Comparing Level of Adoption of Sustainability Practices Based on Ownership of the Firms in Niger Delta

Level of adoption of sustainability practices based on ownership of the firms in Niger delta	**N**	**Mean Rank**	**Sum of Rank**	**Decision @ 0.05 Sig lev.**
Locally Owned Firms	161	121.63	19582.00	
Foreign Owned Firms	161	201.37	32421.00	
Mann Whitney U		6541.000		
Wilcoxon W		19582.000		
Z		-7.686		
P- Value		.001		Reject

4.0 CONCLUSIONS

This study assessed the level of adoption of sustainability practices among locally owned and foreign owned construction firms in Niger Delta and concluded that level of adoption of sustainability practices among construction firms in Niger Delta is moderate. This study also concluded that firms' ownership has significant impact on the level of adoption of sustainability practices by the construction firms in Niger Delta. This study recommends government should pass into law, legislations that would encourage the adoption of sustainability practices by the construction firms in Niger - Delta, Nigeria. This study also recommends that construction firms should improve on their level of adoption of sustainability practices in Niger Delta by increasing top management support, human resource management, employee empowerment, training and educating employees on sustainability practices and increasing the amount of resources allocated to sustainability. Government should pass into law, legislation that would promote the interest of the government and the citizens in the Niger Delta, Nigeria. These Legislations would make the firms to improve their level of adoption of sustainability practice in Niger Delta, Nigeria.

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