Ogboeli, G. P., Iyama, W. A., Onuegbu, W., Dollah, C. O., Gbode, L., and Timothy, N.
Water Resources (2023) 33: 72 – 84

Effectiveness of the Existing Strategies for Managing Marine Transportation Incidences and Socio-Economic Implications

[1]Ogboeli G. P., [1]Iyama, W. A., [1]Onuegbu W., [1]Dollah C. O., [2]Gbode L. and [2]Timothy N.

[1]Institute of Geosciences and Environmental Management, Rivers State University, Port Harcourt, Nigeria
[2]Rivers State College of Health Sciences and Management Technology, Port Harcourt

Abstract

The study investigated the effectiveness of the existing strategies for managing marine transportation incidence alongside socio-economic impacts in Nigeria. Four hundred copies of questionnaire were administered on the respondents drawn from all maritime regulatory agencies, including Nigerian Shipping Council, Nigerian Maritime Administration and Safety Agency, Nigerian Inland and Waterways, Nigerian Ports Authority and Maritime Police with the use of simple random technique. The Study affirmed availability of strategies for managing maritime transportation incidence in Nigeria however not in full usage hence these strategies are very ineffective. Socio-economic implications were obvious and there is need to curb the negative impacts through government deliberate actions and policies. It is pertinent to state that the study results admit the challenges arising from marine incidences, the non-implementation of existing strategies for management of marine related incidences by ministries, departments and agencies saddled with the responsibilities of maritime protection and management tends to be a major cause of most marine incidences. Hence, for a better maritime protection and management, there is need for these strategies adopted by different MDA's to implemented and effectively monitor the trend. Hence study recommends enforcement of maritime management strategies amongst maritime based Ministries, Department and Agencies should be given top priority.

Keywords*: Marine, strategies, effectiveness, transportation, incidences*

INTRODUCTION

The concept of marine accident is the occurrence of an event in a ship or involving any equipment, investment and properties exposed to the marine environment, resulting to injuries to persons at sea or in port, and damage to the marine property or investment (Vouker, 2014). It encompasses accident in the sea or at port, quayside or anchorage, dockyards, or shipyards *etc*. It is immaterial whether the vessel or object involved in accident is sailing or stationary at the point and time of accident (MAIB, 2008). Nigeria being a maritime nation is one of the one hundred and sixty-nine (169), and three (3) associate member countries of the International Maritime Organization (IMO) which is an agency of the United Nations (UN), with the mission of regulating safety operations and instrumentation in the global maritime industry (Nnadi, 2014). Nigerian inland water ways are about ten thousand

kilometres (10,000km) and extensive coast line of about eight hundred and fifty-two kilometres (852km) and territorial sea based on the United Nations Convention on the law of the sea 1982, extending twelve nautical miles (or twenty-two kilometres) into the open seas, from the shorelines of the country, falling fully within the country's exclusive economic zone (Nze, 2013; Nnadi, 2014). Nigerian coastal regions and internal waters runs extensive oil pipeline networks of over 7000km extending to the shores and numerous oil exploration and exploitation platforms. The economic contribution of the marine economy of Nigeria can be maximized given the capacities of the contributing variables as earlier statistics reveal.

It is viewed that the contribution of this sub-sector of the economy has continually remained limited and below expected benchmarks and targets each year following high trend of marine perils and hazards (causal factors of accident) to which the investments are exposed. This equally has economic and financial costs and implications which consequently hinder the maximization of the contribution of the maritime transport sub-sector to the national output (GDP) of Nigeria (Nwokedi *et al*., 2014). Nwokoro and Nwokedi, (2015) affirms the non-implementation of strategies in managing prevalent hazards which has concurrently posed threat to the maritime sector generally. This study therefore focusses on the effectiveness in managing maritime transport incidences *vis avis* impacts on socio-economic activities.

Theoretical Framework

Rasmusen and Svedung (2002) observed that the Domino Theory was developed and advanced by Heinrick (1959) in earlier studies. In developing the Domino theory, Heinrick conducted research on industrial accident and concluded that 88% of accidents are caused by unsafe acts committed by people, 10% by unsafe condition and 2% by acts of God. The 2% caused by acts of God, he termed unavoidable accident. The domino theory explained that injury / loss results from series of events one of which is the accident itself. An accident it explains only result from an unsafe act committed by someone and / or a physical hazard. The opinion of the Domino theory is that management ought to take responsibilities for safety with the supervisor being the key person in the prevention of occupational and industrial accidents seeing as there were indirect losses incurred besides direct ones. Explaining the Domino theory, Haddon (2003) proposed a sequence consisting of five factors that followed sequentially, that is, one factor resulting in the next. The first was ancestry and social environment which explains that negative traits causing people to commit unsafe actions may be inherited or acquired from the environment one must socialized. The second factor is fault of a person which explains that people act in unsafe manner as a result of the negative traits they acquired. The third factor is unsafe act or physical hazard / unsafe condition which directly result to accident. The fourth factor is accident which results in injury, damage and / or loss. The fifth and last factor is injury, damage and / or loss which is the consequence of accident.

Hypothesis Testing

The Chi-square analytical tool is used to investigate whether distributions of categorical variables differ from another. It's a measure for comparing expectations and testing relationship between categorical variables (Mmom, 2007). These shall be tested using Chi-square test (Hypothesis 1) and the one-way analysis of variance (ANOVA) as for hypotheses 2,3 and 4.

The formula for Chi-square is stated below.

$$X^2 = \frac{(f_o - f_e)^2}{f_e} \ldots\ldots\ldots\ldots\ldots\ldots Equation\ 2$$

Were.

f_o = is the Observed Frequency in each category f_e = is the Expected Frequency in the corresponding category

df = is the degree of freedom (n-1)

χ^2 = is Chi Square

Hypotheses 1: There is no statistically significant strategic impact for managing marine transport incidents in Nigeria.

Hypothesis 2: There is no statistically significant strategic impact of marine transport on social activities in Nigeria.

Hypothesis 3: There is no statistically significant strategic impact of marine transport on managing economic activities in Nigeria.

Hypothesis 4: There are no effective and existing strategies for managing marine transportation incidences in Nigeria.

Hypotheses 2, 3 and 4 were tested using the one-way ANOVA (analysis of variance) at 0.05 significant level of difference.

RESULTS AND DISCUSSSIONS

Table 1: Strategies in place to manage maritime transport incidences in Nigeria.

	Items	SA	A	D	SD
1	Respondents' perception on availability of strategies for managing maritime transportation incidences in Nigeria	138 (35.8%)	125 (32.4%)	77 (20.0%)	46 (12.5%)
2	Respondents' perception on full usage of marine transport incidence management strategies in Nigeria	80 (20.7%)	50 (13.0%)	128 (33.2%)	128 (33.2%)
3	Respondents' perception on Compliance to maritime transport incidence management strategies in Nigeria is Optimal	62 (16.1%)	59 (15.3%)	162 (42.0%)	103 (26.7%)
4	Respondents' perception on effectiveness of Maritime transport incidence management strategies in Nigeria	66 (17.1%)	62 (16.1%)	150 (38.9%)	108 (8.0%)

Sources: Researchers Field Report (2023)

Table 2: Social impact strategies in place to manage maritime transport incidences in Nigeria.

Research Items	SA	A	D	SD
1. Does marine transport harm youths?	137(35.5%)	115(29.8%)	80(20.7%)	54 (14.0%)
2. Does marine transport erode social life in Nigeria?	140(36.3%)	130(33.7%)	52(13.4%)	64(16.6%)
3. Are the people more united by marine draught increase and operation?	130(33.7%)	150(38.9%)	73(18.9%)	13(3.4%)
4. Are the males more affected negatively by the increase in marine operation?	142(36.8%)	140(36.3%)	63(16.3%)	21(5.4%)
5. Are cultural value and traditional beliefs sustained by increase marine draught transport activities?	48(12.4%)	67(17.4%)	146(37.8%)	125(32.4%)

Sources: Researchers field report (2023)

The respondents observed that 35.5% (SA) and 29.8% (A) agreed that marine transport causes harm to the people as 20.7% (D) and 14.0% (SD) disagreed while 36.3% (SA) and 33.7% (A) agreed that marine transport erode social life 13.4 % (D) and 16.6% (SD) disagreed (shown in Table 2). Similarly, 33.7% (SA), 38.9% (A) agreed that the citizens are more united by the marine transport operations while 18.9% (D) and 3.4% (SD) disagreed. The males are more negatively affected by the marine operations as 36.8% (SA) and 36.3% (A) agreed while only 16.3% (D) and 5.4% (SD) disagreed. Conversely, cultural values and traditional beliefs being sustained by the increased marine transport activities recorded 12.4% (SA), 17.4% (A) agreed but 37.8% (D) and 32.4% (SD) as disagreed.

Table 3 showed that 36.5 % (SA) and 32.4% (A) agreed that marine transport increases employment rates while 18.4 % (D) and 12.7% (SD) disagreed. The presence of negative impacts of marine transport incidences on the economy was agreed by 41.7% (SA) and 33.4% (A) while 16.8% (D) and 8.0% (SD) disagreed. Gainful employment from marine incidence activities was agreed 20.2% (SA) and 24.9% (A) while 37.6% (D) and 17.4% (SD) disagreed. Impacts of marine transport recorded 29.8% (SA) and 33.7% (A) as agreed while 32.6% (D) and 3.9% (SD) as disagreed. The fishing occupation being negatively impacted recorded 31.6% (SA) and 32.6% (A) while 28.5% (D) and 7.3% (SD) as disagreed.

Table 3: Strategic Impact of managing marine transportation incidences on economic activities in Nigeria.

Research Items	SA	A	D	SD
1. Does marine transport increase employment rate?	141(36.5%)	125 (32.4%)	71(18.4%)	49 (12.7%)
2. Are there negative impacts of marine transport on the Nigerian economy?	161(41.7%)	129(33.4%)	65(16.8%)	31(8.0%)
3. Are the citizen gainfully employed?	78(20.2 %)	96(24.9%)	145(37.6%)	67(17.4%)
4. Are there signs of the impact of marine transport in the area, Nigeria?	115(29.8%)	130(33.7%)	126(32.6%)	15(3.9%)
5. Are negative impact on the fishing occupation?	122(31.6%)	26(32.6%)	110(28.5%)	28(7.3%)

Sources: Researchers Field Report (2023)

Table 4: Effectiveness in managing maritime transport incidences impacting socio-economic activities.

	Items	SA	A	D	SD
1	Respondents' perception on maritime transport incidences impacts on socio-economic activities in Nigeria	123 (31.9%)	125 (32.4%)	68 (17.6%)	70 (18.1%)
2	Respondent perception on maritime transportation incidences as negative tool in Nigeria	136 (35.2%)	128 (33.2%)	72 (18.7%)	50 (13.0%)
3	Respondents' perception on marine incidences and massive relocation of international oil companies from Nigeria	157 (40.7%)	128 (33.2%)	57 (14.8%)	44 (11.4%)

Sources: Researchers field report (2023)

Figures 1, 2, 3 and 4 gives graphical relationships of social, economic, and socio-economic effectiveness on marine transport incidences respectively.

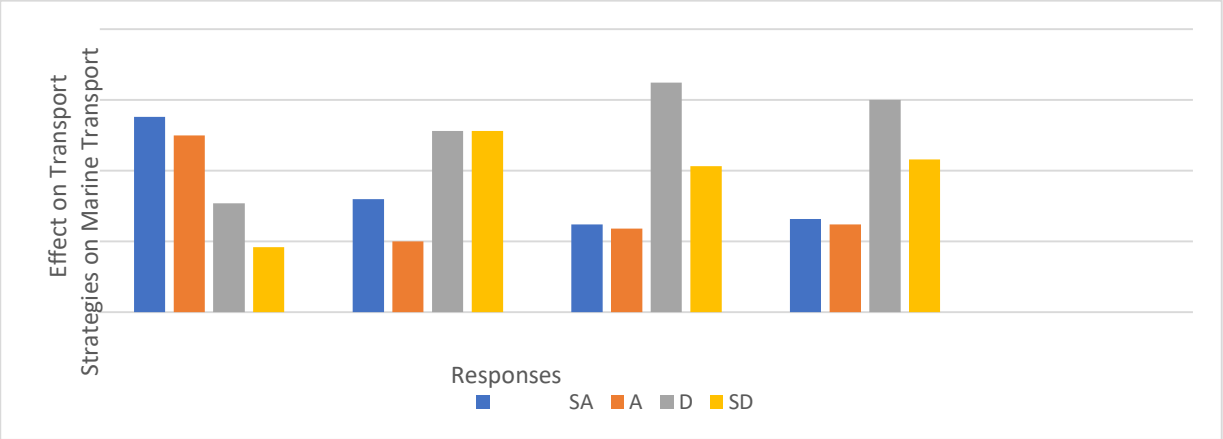

Figure 1: Strategies put in place to manage maritime transport incidences in Nigeria.

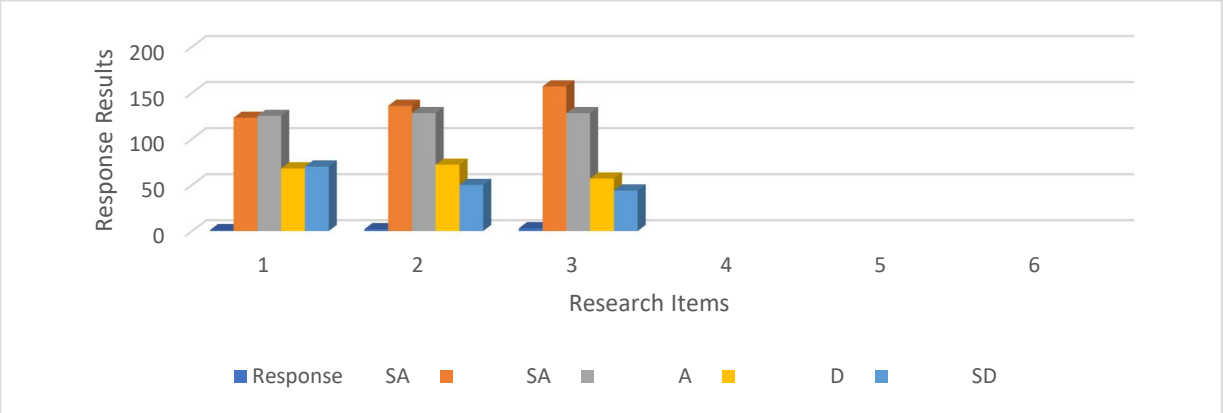

Figure 2: Effectiveness of Marine on Social Activities

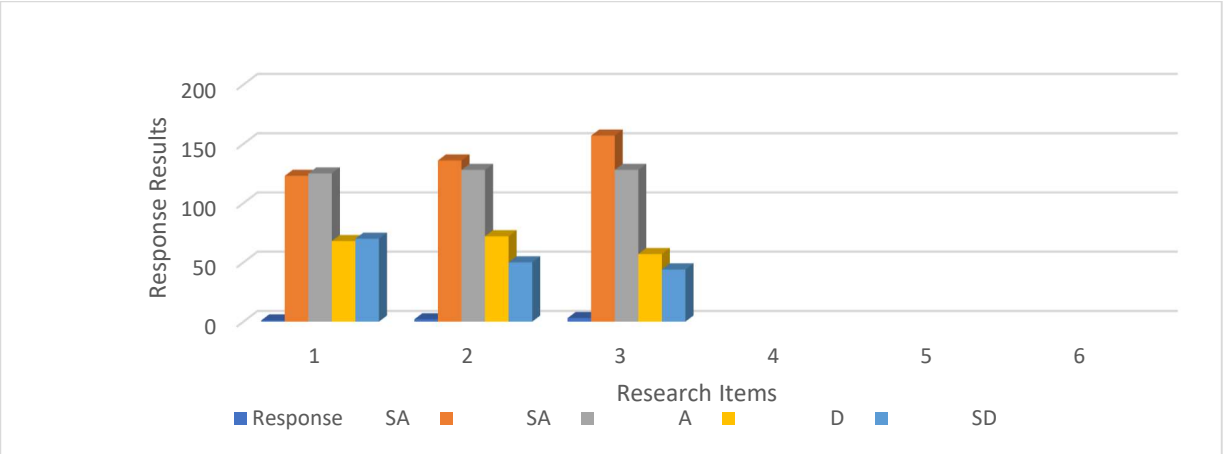

Figure 3: Impact of Marine Transport on Economic Activities

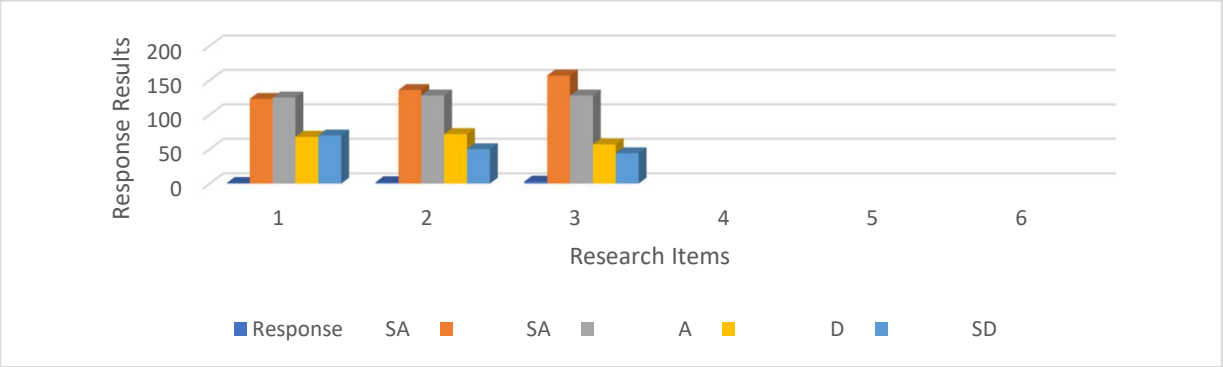

Figure 4: Effectiveness of Marine Transport on Socio-Economic Activities

The effectiveness of the existing strategies for managing marine transportation disaster are summarized in Table 1 above. Table 1 revealed the availability of strategies for managing maritime transport incidences in Nigeria. The result shows that 35.8% strongly agreed, 32.4% agreed, 18.9% disagreed while 12.2 % strongly disagreed. Thus, respondents agreed that there are available strategies for managing maritime transportation incidences in Nigeria. Research has showed the existence of long-term objectives, goals, and strategies for managing maritime transportation incidences in Nigeria (Kandt, 2002; Chen *et al*., 2011; Trigeorgis & Reuer, 2016). Indeed, Lindenau and Bohler-Baedaker (2014) suggest that these strategies relate to the basic decision-making processes, which drives the planning, implementation, and control activities within the maritime organization. Viewing from a business and management perspective (Oehmichen *et al.,* 2016) suggest that 'strategic change' within an industry is a consequence of the ever-changing macro environment and industry environment. This suggests that these management strategies provide an opportunity for firms within an industry to change or innovate, to achieve and sustain competitive advantage (Porter, 2008; Barney & Hesterly, 2012). In addition, it suggests that firms that understands the structure and level change that are needed become more competitive compared to their rivals within the industry in which they operate (Babatunde & Adebisi, 2012). The empirical evidence from existing literature and prior studies on business turbulence and development in the global maritime industry reveal that the industry has gone through a series of reforms, which have contributed significantly to industrial development in many emerging economies, including Nigeria (Ogunniyi & Igberi 2014; Emenyonu *et al.,* 2016). At present, Nigeria is one of the top emerging economies in Sub-Saharan Africa, due to its massive reserves of crude oil and other natural resources (Butcher *et al.,* 2012; World Bank, 2017).

Further studies on full implementation of strategies for managing maritime transport incidences in Nigeria are available, however, 33.7% disagreed, 30.6% strongly disagreed, 20.7% strongly agreed while 12.7% agreed on this. Thus, its implication is that there are strategies in place however they are not in full usage. Prior studies on the Nigerian maritime industry identify significant gaps in the

industry's performance and competitiveness in the last decade *e.g.,* the competitiveness of the industry is in decline *vis-à-vis* the global maritime industry (Ogunniyi & Igberi, 2014; Bello-Olowookere, 2011). This raised fundamental issues relating to the relevance of the theory and practice of strategies for managing maritime transportation incidences in Nigeria in sustaining firm competitiveness within the Nigerian maritime industry. The urgent need to address these issues provides the motivation for this study. Study showed optimal compliance to available maritime transport strategies in Nigeria. The result showed that 42.0% disagreed, 26.7% strongly disagreed, 16.1% strongly agreed while 15.3% agreed. Thus, the available strategies are not complied with optimally. It has been proclaimed that change is a crucial and inevitable scenario within any of today's organizations, individuals, societies, and political establishments (Aderamo, 2012). This can be further defined as the engagement of new values, ideology, technology, structure, and attitudes for supporting organizations in taking on a new dimension. Many organizations out there still find it hard to effectively integrate change management processes within their working environment and business practices, due to the rejection of change by employees (Aluko, 2013). The literature provides different facts and elements that contribute to the failure of a new change management practice within an organization (Aroh *et al*., 2010). In the argument of Odularu and Aluko (2014), they considered that the psychological state of an employee could be a determinant factor for the failure or success of a new organizational change. Makinde (2005) further argued that these psychological elements can only be achieved in a corruption-free business environment or society. Considering a developing nation like Nigeria, employers impose their own ideas and understanding of a new change on their employees, without considering their opinions, contributions, emotional attachment, or the impact of this new change on their lives and their jobs (Olarewaju & Folarin, 2012). In other words, this signifies that organizations and managers in this part of the world find it difficult to understand the psychological needs of their employees, when it comes to promoting change and reform within the organization (Ndikom, 2013). Bormann and Rowold (2016) mention that participative attributes and traits of leadership give employees a strong emotional sense of belonging, i.e., when their leaders join them in executing or carrying out a particular task.

However, the effectiveness of maritime transport incidence management strategies in Nigeria showed that 38.9% disagreed, 28.0% strongly disagreed, 17.1% strongly agreed while 16.1% agreed. Thus, the result showed that maritime transport incidence management strategies are not very effective in Nigeria. Effective service quality and management strategy, according to Damachi and Zhaosheng (2005) is specifically seen as ''an umbrella construct with distinct dimensions'', although there is no real consensus as to what these dimensions might be. Various scholars have suggested several dimensions of quality service and management strategies. Okoroji (2013) viewed equipment malfunctions as the technical difficulties involved in the breakdown of navigational equipment. It may

include the loss of steering system that could result to collision or grounding, pipe burst, and hose burst that can cause explosion, propulsion power failure, unintentional blackout etc. Anyanwu (2014b) asserts that equipment or technical malfunctions cannot be overlooked as it forms part of the vital causes of marine accidents. This is valid as more often as these technical breakdowns happen without prior warnings and formed a major threat to maritime management strategy. Faturachman, *et al*. (2013) identified that eleven (11%) percent of the marine accidents are caused by the factors relating to technical failures.

Maritime Injury Guide expressed that in several cases, technical failure could be caused by natural phenomena such rough seas and bad weather. However, Okoroji (2013) believes that system failures caused by technical breakdowns should be categorized as part of human error as most of the time, it is either the manufacturers' factory lapse or erroneous installation.

On the effectiveness for the existing strategies for managing marine transportation disaster in Nigeria, the study revealed that there is availability of strategies for managing maritime transportation incidences in Nigeria. It was also evident from the study that there are strategies in place however they are not in full usage. Table 1 on optimal compliance to available maritime transport strategies in Nigeria result shows that 42.0% disagreed, 26.7% strongly disagreed, 16.1% strongly agreed while 15.3% agreed. Thus, the available strategies are not duly complied with optimally. Also, on maritime transport incidence management strategies being very effective in Nigeria, the result showed that 38.9% disagreed, 28.0% strongly disagreed, 17.1% strongly agreed while 16.1% agreed. Thus, the result shows that maritime transport incidence management strategies are not very effective in Nigeria. Scanlon (2003) examined the role of transportation systems for rapid and mass evacuation in times of crisis. They estimated the total business-related losses to be very high more than $6.5 billion, of which transport related interruptions amounted to more than $1.5 billion or more than 27% showing high level of no compliance to management strategy.

Conclusively, the calculated Chi-square value of 31.414 is greater than the critical value of 21.03 at the given level of significance hence rejecting the null hypothesis of no significant difference (Table 1). Arising from this therefore, we uphold the alternate hypothesis which states that there is statistically significant impact of marine transport incidence on socio-economic activities in Nigeria. Similarly, using the ANOVA result for Table 2, the f-ratio value was 3.281 at p-value of .0482. Since the p-value was less than .05, the result is significant hence the null hypothesis is rejected. This implies that there is significant impact of marine transport on social activities within operational zones of maritime in Nigeria. This was also corroborated by the impact of marine transport on the economic activities in Nigeria as f-ratio value was 11.55 at p-value of .0003 which indicated that the null hypothesis be rejected (Tables 3 and 4). This also implied that there is significant impact of marine transport on economic activities in Nigeria.

In as much as human error serves as a leading cause of marine accidents, equipment failure and bad weather have also played their role in the causation effect of marine accidents impacting heavily on liveability. From the results in Table 3 and 4 on the impact of managing maritime transport incidence on the socio-economic activities in Nigeria there was a clear agreement that maritime transport incidences affect and impacts the socio-economics activities in Nigeria. Effectiveness in managing maritime transport incidences impacting socio-economic activities was on the low side showing negative response. The study went further to reveal that marine incidences have brought about massive relocation of international oil companies from Nigeria which has shown poor effectiveness in managing these marine incidences. This agrees with earlier reports that identified the impact of maritime transport incidence on the socio-economic activities in Nigeria leading to deforestation, pollution, diseases, and death (Ibaba, 2005; Orabator *et al.*, 2005; Ikelegba, 2008; Ezem, 2012; Olasupo, 2013).

CONCLUSIONS

Over the years, transport related incidence especially those in the maritime environment have caused severe damages economically and socially to both users and operators in the industry owing to inability of the ministries, departments and agencies saddled with the responsibilities of maritime protection and management to implement the strategies for managing marine transport incidence.

Review of the effectiveness of the existing strategies for managing marine transportation incidence affirmed availability of strategies for managing maritime transportation incidence in Nigeria however not in full usage hence these strategies are very ineffective. It is pertinent to state that admits the challenges arising from marine incidences, the non-implementation of existing strategies for management of marine related incidences by ministries, departments and agencies saddled with the responsibilities of maritime protection and management tends to be a major cause of most marine incidences. Hence, for a better maritime protection and management, there is need that these strategies adopted by different MDA's needs to be implemented and effectively monitored. Enforcement of maritime management strategies amongst maritime based Ministries, Department and Agencies should be given top priority.

REFERENCES

Aderamo, A.J. (2012). Road Traffic Accident Injuries and Productivity in Nigeria. *Journal of Asian Scientific Research, 2* (7), 334-344.

Aluko, A. (2013). Cabotage Act: Issues and Policy Recommendations, Available from: http://www.punchng.com/opinion/cabotage-act-issues-and-policy recommendations/

Anyanwu, J. O. (2014b). Maritime Tanker Accident on Coastal Areas in Nigeria. *Global Journal of Research in Engineering: Industrial Engineering*, *14*(2), 2249-4596.

Aroh, K.N, Ubong, L.U, Eze, I.M, Harry, J.C, Umo-Otong and Gobo, A.E (2010). Oil Spill Incidents and Pipeline Vandalization in Nigeria Impact on Public Health and Negation to Attainment of Millennium Development Goal: The Ishiagu Example. *Disaster Prevention and Management, 19,* (1), 70-87.

Babatunde, B.O. and Adebisi, A.O. (2012). Strategic Environmental Scanning and Organisation Performance in a Competitive Business Environment, Economic Insights – Trends and Challenges, Available from: http://upg-bulletin-se.ro/archive/2012-1/3.%20Babatunde_Adebisi.pdf

Barney, J.B. and Hesterly, W.S (2012). Strategic Management and Competitive Advantage Concepts, http://teaching.up.edu/BUS580/bps/Barney%20and%20Hesterly,%202008,%20ch3_VRIO%20internal%20analysis

Bello-Olowookere, G.B. (2011) The Effects of Cabotage Regime on Indigenous Shipping in Nigeria. https://commons.wmu.se/cgi/viewcontent.cgi?referer=https://www.google.co.uk/&httpsredir=1&article=1175&context=all dissertations.

Bormann, K.C. and Rowold, J. (2016). Transformational Leadership and Followers' Objective Performance over Time: Insight from German Basketball, *Journal of Applied Sport Psychology, 28*(3), 367-373.

Butcher, T. Dickens, R. and Manning, A. (2012). Minimum Wages and Wage Inequality: Some Theory and an Application to the UK. CEP Discussion Papers, CEPDP1177. Centre for Economic Performance, London School of Economics and Political Science, London, UK.

Chen, I.C, Hill, J.K., Ohlemuller, R., Roy, D.B. and Thomas, C.D. (2011). Rapid Range Shift of Species Associated with High Levels of Climate Warming. *Science*, 333, 1024-1026.

Damachi, B.B. and Zhaosheng, Y. (2005). The Nigerian shipping industry and indigenous shipping companies. *Maritime Policy & Management*, 32 (1), 31-38, DOI: 10.1080/03088830420003261 20

Emenyonu, H.K., Onyema, K.O., Ahmodu, K.O. and Onyemechi, C. (2016). Econometric Analysis of Seaport Development and Its Impact on the Economic Growth of Nigeria. *International Journal of Advanced Research, 4,* (2), 133-138.

Ezem, F. (2012, December 28). *Challenges of curbing criminality in Nigeria's Maritime Domain.* National Mirror.

Faturachman, D., Shariman, D., Mustafa, O. & Novita, T. D. (2013). *Failure Mode and Effects Analysis of Diesel Engine for Ship Navigation. http://umpir.ump.edu.my/4271/1/ftech-2013-dannyfailure_mode_and.pdf[Accessed: 14 September 2019].*

Haddon, W. (2003) Energy Damage and the Ten Counter measure Strategies. *The Journal of Trauma*, 13 (4), 142- 220.

Heinrich, H. (1959). Industrial Accident Prevention: A Scientific Approach (4th edition). New York, McGraw Hill.

Ibaba, S. (2005). *Understanding the Niger Delta Crisis*. Port Harcourt: Amethyst and Colleagues Publishers. Op.cit. P. 207.

Ikelegbe, A. (2008). "*Interrogating a Crisis of Corporate Governance and the Interface with Conflict: The Case of Multinational Oil Companies and the Conflicts in the Niger Delta"*. Conference proceedings, International Conference on the Nigerian State, Oil and the Niger Delta, Organised by the Department of Political science, Nigeria Delta University, Wilberforce Island, March 11-13.

Kandt, R. K. (2002). Organizational Change Management Principle and Practices, http://trs-new.jpl.nasa.gov/dspace/bitstream/2014/10570/1/02-2625. (Accessed Date: 09/01/2018).

Lindenau, M. and Bohler-Baedeker, S. (2014) Citizen and Stakeholder Involvement: A Precondition for Sustainable Urban Mobility. *Transportation Research Procedia, 4*(1), 347-360.

MAIB (2008). Annual Statistical Report of the marine Accident Investigation Boards. Available at: www.amem.at Retrieved on 22/10/2016.

Makinde, T (2005) Problems of Policy Implementation in Developing Nations: The Nigerian Experience. *Journal of Social Science, 11,* (1), 63-69.

Mmom, P.C. (2007). *'Impact of Human Density and Economic Activities on the Mangrove Forest of the Niger Delta, Nigeria'*. Paper presented at the Annual Conference of the International Association for Impact Assessment, held in Seoul South Korea.

Ndikom, B.C. (2013). A Critical Evaluation of the Challenges and Opportunities of Shipping Line Service in Nigeria, *Greener Journal of Business and Management Studies, 3* (5), 241-250.

Nnadi, K. U. (2014). The Economics of market Contestability in Nigeria Coastal Shipping, Seminar Paper at the School of Management Technology, Federal University of Technology, Owerri.

Nwokedi T. C., Okoroji L. I. & Onyemechi C. (2014) An Analysis for Reduction in Economic Loss from Damage Accident in use of Transport Modes: A Comparative Study. *Journal of Economics and Sustainable Development*, 5 (8), 182-189.

Nwokoro I. A., Nwokedi, T. C., (2015) An Evaluation of the Economic and Financial Capacity of Indigenous Underwriting firms for Marine Risk and Investment Cover in Nigeria, *International Journal of Research in Commerce, IT and Management*, 5(3), 62-66.

Nze, I. C. (2013). Analysis of the Fatality Rates of Boat and Ferry Accident on Inland Waterways in Nigeria. *IOSR Journal of Business and Management*, 11(2), 17-20.

Oehmichen, J., Schrapps, S. & Wolff, M. (2016). Who Needs Experts Most? Board Industrial Expertise and Strategic Change-A Contingency Perspective. *Strategic Management Journal, 5*(3), 62 - 66.

Ogunniyi, M.B. and Igberi, C.O (2014). The Impact of Foreign direct Investment on Poverty Reduction in Nigeria. *Journal of Economics and Sustainable Development, 5*(14), 11-23

Okoroji, L. I. (2013). 'Evaluation of the Impact of Oil Tanker Accidents on Niger Delta Areas in Nigeria'. *Journal of Environmental Science, Toxicology and Food Technology, 4*(5), 83 - 90.

Olarewaju, A.A. and Folarin, E.A. (2012). Impact of External Business Environment on Organisational Performance in the Food and Beverage Industry in Nigeria. *British Journal of Arts and Social Sciences, 6*(2), 194-201.

Olasupo, O. (2013). The Consequence of Militancy in Nigeria's Niger Delta*. JORIND 11* (12), 1596 – 8303.

Orobator, E. Ifowodo, F. and Edosa, E. (Eds.). (2005). *Federal State and Resource Control in*

Porter, E.M. (2008). The Five Competitive Forces that Shape Strategy, Harvard Business Review.

Rasmusen, J. and Svedung, I. (2002). Graphic representation of accident scenarios: mapping system structure and the causation of accidents. *Safety science*, 40(2002), 397–417.

Scanlon, J. (2003). *Transportation in Emergencies: An Often-Neglected Story, Disaster Prevention and Management,* 12(5), 428-437.

Trigeorgis L., Reuer J. J. (2016). Real options theory in strategic management. *Journal of Strategic Management*, 38, 42-63.

Vouker S. (2014). Annual report on maritime casualty investigation. Federal bureau of maritime casualty investigation, ministry of transport and digital infrastructure, Germany.

World Bank (2017). Nigeria Bi-Annual Economic Update: Fragile Recovery, Available from: http://documents.worldbank.org/curated/en/349511494584937819/pdf/114996-WP-P163291PUBLIC-NEUNoFinalfromPublisher.pdf (Accessed Date: 26/01/2017).