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An Analysis of Environmental Campaign Strategic Influence on Aquaculture Management In South-South, Nigeria

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ABSTRACT:- Environmental challenges, especially water pollution remains a major challenge to the stakeholders in environmental protection and management in Nigeria. This informed environmental campaign as a strategy to combat the menace in South-South, Nigeria. descriptive survey research design was adopted for the study. The population for the study comprised, staff of Ministry of Environmental and Natural Resources in the six states of South-South, Nigeria. The sample size was ninety (90) subjects, selected through a simple random sampling technique. The primary data was collected through a research instrument developed by the researchers, entitled "Questionnaire on an Analysis of Environmental Campaign Strategic Influence on Aquaculture Management in South-South, Nigeria", complemented with secondary data collected, through the Focus Group Discussion (FGDs). The research instrument was validated by an expert in Test and Measurement at Adeyemi College of Education, Ondo, while its validity was done through Test-Retest method at two weeks interval. 0.66 coefficient reliability was obtained. Data collected on research questions was analysed, using descriptive statistics (frequency counts, simple percentages and mean), while data collected through the FGDs was collated transcribed and analysed quantitatively. From the results, conclusions were made that: environmental campaign strategy could influence people's behaviour and lifestyles and also made people to acquire knowledge on the environment (water) that would result into effective aquaculture management in South-South, Nigeria. recommendations were made that: government and other stakeholders in environmental issues, especially, aquaculture management should intense efforts on environmental campaign. Also, that the environmental strategy should be done on a continued and regular basis etc. B

Keywords:- Environment, Campaign, Strategic, Aquaculture, Management

I. BACKGROUND TO THE STUDY

Water pollution and its resultant negativec effects on aquaculture practice is one of the major environmental challenges besieging environmental sustainability which in turn pose as a serious threat to economic growth and development in Nigeria. This is very predominant in predominantly, in the riverine areas or coastal areas of the country , due to fish training activities and presence of oil companies, as in the case of South-South, Nigeria. Mining has left various imprints on the landscape, while petroleum spillages had had considerable impacts on the environment and hence the economy of the oil-producing areas (Ikporukpo, 1983).

Aquaculture is a farming activity that takes place in water. It involves farming which encompasses or covers rearing of organisms, , such as; fish, mollusks, crustaceans and aquatic plants. The Food and Agriculture Organisation (FAO) , stated that aquaculture is the fastest growing sector of the world food economy, increasing by more than 10% per year and accounts currently for more than 30% of all fish consumed. White O'Neil and Tzankova (2004), reported that the advent of aquaculture dates back millennia and the exact time it started is unknown and untraceable. Daramola, Osofero, Kester and Gbadamosi (2007), noted that exploitation in population of the natural fish resources as a result of the ever-increasing human population and consequent protein demand made fish farming or aquaculture one of the means to tackle protein malnutrition in developing countries. They contended that aquaculture in Nigeria occurs in land and of recelnt in Nigeria that South

Westregion has been the focus of the development (fish farming or aquaculture). Although in the fishing communities in Nigeria fish farming had long been in practice in a traditional method of fish culture in tidal pools and flood pains (Dada, 1975 and Sagua, 1976). The practice of aquaculture then was very primitive and deviated from its modern practice. "Aquaculture production is predominantly an extensive land-based system practiced at subsistence level, while commercial is yet to become widespread (Osefero, Kester and Gbadamosi, 2007).

In fish farming FAO (1998), puts Nigeria raking on second position in Africa and that Nigeria and Egypt account for about 85% of the total aquaculture production in Africa. Nigerian aquaculture industry produced over , 30,000 tones of various freshwater and brackish water fish species, comprising mainly herbivorous/carnivorous catfishes that are being rearing under intensive (commercial) and semi-intensive (artisanal) production systems. Iter, Sado, Balogun, Pandogari and Ibitoye (1985), however noted that the nation (Nigeria) is capable to produce about 656.915 metric tons of fish annually from fish farming or aquaculture.

Undoubtedly, aquaculture practice in Nigeria has ever remains a one of the sources of generating incomes to the country, poverty reduction and employment creation on average number of people Nigeria, especially, the coastal areas (South-South) area in involving in aquatic culture, although the practice may not been modern. As contributive as aquaculture is to the individuals and nation's economy, environmental threat and among other factors have pose as threat to fish farming in Nigeria. "Fisheries and aquaculture play a significant role in global food supplies and demand for high quality aquatic proteins is expected to increase substantially as income level rise. (Delgado et al 2003).

The development of aquaculture in Nigeria has been militating against by many factors, environmental threat arising from human beings interaction with the aquatic habitat. Degradation of aquatic environment in Nigeria has always remains one of the major threats to aquaculture practice in Nigeria. Adewole, Akintola, Jimoh, Owodehinde, Whenu and Fakoya (2009), stated that aquaculture environment has been subjected to a high microbial load with its resultant effects is diseases, especially at high stocking densities. Also, there is hyacinth plant (Eichorrnia Gassipes) in the fish farming environment in Nigeria. Other factors that hinder aquatic habitat and aquaculture in Nigeria are water pollution in form of solid waste disposal into water; oil spills emanating/from the production of different industrial activities (oil exploitation) and other pollutants from industries, such as organic pollutants, alcoholic brewer waste, acid, alkali, caustic soda, biodegradable organic matter, sedimentation, flocculation, oil spillage, toxic waste and other forms of water pollution due to oil exploitation in South-South, Nigeria has negatively impacted on aquaculture, which has socio-economic implications and the living standard of people in the region. Most activities of oil exploration can be found in the South-South or Niger Delta area of Nigeria. Although, oil production generates the greatest proportion of foreign exchange and internal revenue earning for the Federal Government. However, the concentrate of oil exploration can constituted environmental pollution (water) in the region, apart from been a challenge to fish farming (aquaculture), it endangers the sustainability of coastal and marine life. Alexander (2007), noted that toxic concentration from oil spills causes destruction of organisms on irreversible damage to vitally important functions to carrier (embryos), larvae and fingerlings of marine animals. Ogbogbo (2004), stated that the negative effects of oil spillage are massive pollution of lands, rivers and streams in the Niger Delta. Biukeme (2001), noted also that oil pollution has a deterious effect on living organisms, impairs water quality and creates problems to the ecosystems water. Thus, the environment becomes endanger for living apart from jeopardy fish farming activities.

The challenges to aquaculture has necessitated several measures or states such as; policies, legislating and programmes to its management in Nigeria, especially in South-South , where several reports have indicated a high level of environmental challenges, including; water pollution They are:

- The National Policy on Environment, 1989 and 1999;
- Waste Management Regulation S.I 15 of 1991;
- National Guideline on Waste Disposal through underground Injection (1999);
- National Guideline for Spilled Oil Fingerprinting (June, 1999).
- National Resources Conservation Action Plan etc

Most of these, strategic measures to combat environmental challenges have not fully adhere the expected results due to numerous factors such as; multiplicity of legislations from the three tiers of government with in clear-out regulatory framework, corruption, inadequacy mechanism to carry out environmental impact assessment, ignorance, poor implementation strategy etc. Hence, the menace in still persisting in South-South, Nigeria, predominantly.

Several studies had been carry out on solution to aquatic problems in South-South, Nigeria but many of the studies had been self-reported by the researchers without empirical study. It is against this background that this study was carried out on an analysis of environmental campaign strategy influence on aquaculture management in South-South, Nigeria.

II. STATEMENT OF THE PROBLEM

Environmental challenge in form of water pollution arising from industrial waste and behaviours of people constitute a threat and a great problem to aquaculture practice and management in Nigeria, especially in South South region, due to the preserve of oil spillages from multinational company concentration. This was serves as a major system to marine life and fish turning (aquaculture in the region).

The realization of this had informed several legislations, politics and programmes implementation towards aquaculture management in South-South, Nigeria but most of the measures and strategic approaches have not yield impressive results. Observable, several challenges have militated the measures. Therefore, this necessitated the adoption of public enlightenment strategy to tackle the menace. It is against this background this study was carried out

Objectives of the Study

The broad objective of the study was on the analysis of environmental campaign strategic influence on aquaculture management in South-South, Nigeria. The specific objectives were to:

i. Determine the effects of environmental campaign strategy on behavioural on lifestyle changes on people towards aquatic water, in South-South, Nigeria; and
ii. Examine the influence of environmental campaign strategy on people's knowledge of water management in South-South, Nigeria.

Research Questions

Two research questions were formulated to guide the study:

i. Can environmental campaign strategic influence positive changes in people to behaviours or lifestyle towards habitat in South-South, Nigeria?
ii. Will people acquire the knowledge on environmental management through environmental campaign strategies in South-South, Nigeria?

Significance of the Study

The study is significant to the stakeholders in aquaculture management;

i. The findings of the study will provide a base line data to justification the implementation of environmental campaign strategy by the appropriate authorities and agencies responsible for environmental management, especially on aquaculture management in South-South, Nigeria.
ii. The study will further serve as an eye-opener to the public on their actions and inactions and how it can been militating against the practice of aquaculture in South-South, Nigeria.
iii. The results of the study will add to the existing literature on environmental challenges, especially on fish farming problems. Thus, serves as a good source of material or reference to researchers that will carry out researches in the study area in future

III. LITERATURE REVIEW

Environmental Campaign and Water Management

Towards protecting the environmental from further deterioration, degradation and devastation, one of the strategies adopted globally is campaign strategy. Some environmentalists have called on the government and other stakeholders in the environment to begin aggressive campaigns to change the public attitudes and behaviours that are very dangerous to the environment. Environmental campaign should begin from should therefore evolve pragmatic approach to tackle the menace. Campaign strategy is a term that is used in diverse areas and sectors, ranging from social, military, religious, political etc. Albert (2007), defines campaign strategy as a way of achieving or reaching goals. Campaign entails making a dialogue, conversation with the public, persuading people to follow a particular path or direction. It is a way of gaining people's interest in support of a particular move, ordinary which will not have happened. It involves a conscious series of revelations or communications exercise to take the audience from a state of ignorance, through interest and then concern (components of awareness), into anger and engagement (motivation) and finally into a state of satisfaction or reward.

The essence of using campaign as a strategy is to influence people towards a particular direction or make people to take a specific line(s) of actions or interactions. The term , refers to involving mass participation on a particular issue. In recent times, environmental campaign, globally has been adopted towards solving environmental problems. Environmental campaign is based on the assumption or on the idea that effective environmental messages could be developed through the application of cognitive science by professional communication experts which can influence public opinion and thus support, legislative action tackle environmental challenges (Brulle, 2010).

According to Boztape (2012), in recent times, with the increase in industrialization and urbanization, the usage of resources in spite of their shortages has confronted the natural environment and human health with a pollution at dangerous lands. This situation demands for environmental awareness i.e. making people to grasp with the knowledge and their actions that can result to threat to the environment in its diverse forms. Environmental campaign therefore would make people to be aware of their responsibilities to the environments, particular their behaviours and attitudes to the environment. Environmental campaign strategy is a way of educating the society. Since, it has the benefits of teaching people the world around them; environmental campaign should involve campaign reduce the menace. Campaign strategies that should be use on water protection, includes; serial media and direct communication with the people.

In a nutshell, environmental campaign, specifically on water management raises public awareness on the importance to sustainable development. It changes people attitudes and behaviours on efficiency use of water.

Theoretical Framework

Behavioural Changed Model (BCM)

Theories are regarded as analytical events, which are relevant in the exploration of observed relationship and upon which study is anchored. This theory is based on the supposition that if people were informed or they become more conscious of environmental problems, they would be motivate to exhibit behaviours that are environmentally friendly (Akintunde, 2017).

Behavioural change model is premised on the ground that if people acquire the appropriate knowledge, information and made conscious of environmental challenges, subsequently will result to environmentally favourable attitudes which would result into the protection f the environment.

Akintunde (2017), stated that the theory although very simplistic, however, it provides a base for the consideration of likely relationship existing between environmental knowledge, environmental awareness and attitude and how this can result or translate into actions that can sustain the environment. Further, it was noted that a good knowledge of environmental variables may not necessary indicvat4es or implies a poor environmental practice. The interventions in the model are: knowledge, awareness or attitudes and action.

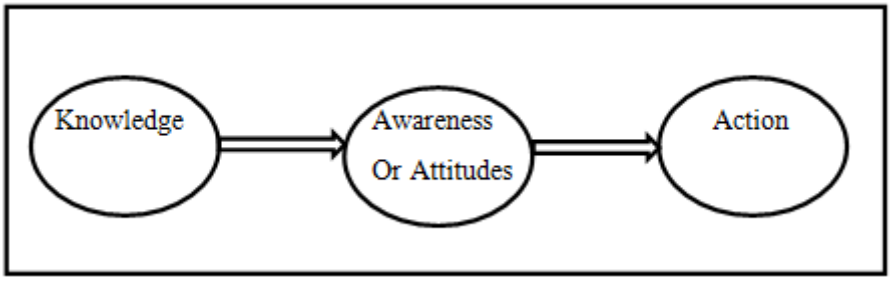

Figure 1: Behavioural Change Model by Akintunde E.A (2017) Adapted and adopted by Erinsakin et,al (2020).

TheKnowledge of the environment results into people's awareness or favourable attitudes which in turn would lead to human actions that will not endanger the environment. The application of the theory to this study hinges on the fact that environmental campaign will enable people to acquire the appropriate knowledge of the environment (water) in terms of what constitute as dangers or challenges to it (awareness or attitudes). Water which would inform taking actions towards its management. This, serves as the justification for the relevance or appropriateness of the theory to the study.

IV. METHODOLOGY

Descriptive survey research design was adopted for the study. The study population comprised all the personnel or staff of Ministries of Environment and Resource Management in the six states in South-South, Nigeria (Edo, Delta, Bayelsa, Akwa-Ibom, Abia, River, Imo and Ondo States).

The sample size for the study was Ninety (90) respondents, selected through a simple random sampling technique in which Ten (10) respondents were selected. The instrument that was used to gather primary data was self-developed structured questionnaires by the researchers, entitled "Questionnaire on Analysis of Environmental Campaign Strategy on Aquaculture Management in South-South, Nigeria" developed on four Liker Rating Scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD), while the secondary data was collected through Focus Discussion Group (FDG). The instrument was validated by the experts in Test and Measurement of Adeyemi College of Education, Ondo. The reliability of the instrument was determined through test re-test method of two weeks interval. And 0.70 coefficient reliability was obtained.

Data generated on the research questions were analysed, using descriptive statistics (simple percentages, frequency counts and means).

Presentation of Results and Discussion of Results

Research Question One: Can environmental campaign strategic influence positive changes in people's behaviour or lifestyles towards aquatic habitat in South-South, Nigeria?

Table 1: Showing frequency counts, simple percentage, and means on can environmental campaign strategic influence positive changes in people's behaviour or lifestyles towards Rivers in South-South, Nigeria.

S/N	ITEMS	SD	D	A	SA	Mean	Remarks
1.	Environmental campaign has changed my behaviour towards aquatic habitat, positively	4 4.4%	6 7%	18 20%	62 69%	3.5	**Accepted**
2.	Environmental campaign has not changed my behaviour toward aquatic habitat	54 60%	24 27%	8 9%	4 4.4%	1.6	**Rejected**
3.	My negative behaviours hitherto towards rivers was due t lack of awareness on how to manage them	14 15.5%	16 18%	20 22.2%	40 44.4%	2.9	**Accepted**
4.	Environmental campaign on water usage has not exposed me to my different activities that can kill organisms in the water	58 64.4%	12 13.3%	12 13.3%	8 9%	1.8	**Rejected**
5.	Environmental campaign strategy has made me to become more conscious of my actions that can protect the aquatic lubricate	4 4.4%	16 18%	17 19%	53 59%	3.4	**Accepted**
6.	My behaviours towards rivers pollution was not because of lack of information on its values	42 46%	32 35.5%	9 10%	7 8%	1.8	**Rejected**
	Total	**176** **34.5%**	**106** **20%**	**84** **15.5%**	**174** **32.2%**	**2.5**	**Accepted**

Table 1 presents the result on research question one that states that can environmental campaign strategic influence positive changes in peoples' behaviours towards the aquatic habitat in South-South, Nigeria? On item (1), 62 (69%) among the respondents responded strongly agree 18 (20%), agreed 6 (7%), disagreed, while 4 (4.4%) strongly disagreed.

On item (2), 4 (4.4%) strongly agreed, 8 (9%) agreed, 24 (27%) disagreed while 54 (60%) strongly disagreed. On item (3), 40 (44.4%) strongly agreed among the respondents, 20 (22.2%) agreed, 16 (18%) disagreed while 14 (15.5%) strongly disagreed. On item (4), 8 (9%) among the respondents strongly agreed, 12 (13.3%) agreed, while 12 (13.3%) obtained also for strongly disagreed. On item (5), 53 (59%) strongly agreed, 17 (19%) agreed, 16 (18%) disagreed, while 4 (4.4%) strongly disagreed. On item (6), 7 (8%) strongly agreed, 9 (10%) disagreed, 32 (35.5%) disagreed, while 42 (46%) strongly disagreed.

Premised on the results on table 1, it is very obvious that people's behaviour, positively could be influenced toward aquatic habitat through environmental campaign strategy in South South, Nigeria. Since, the average mean of rating scale is (x = 2.5) and not less than the average mean of rating scale of four, which is (x = 2.5), also the result was corroborated by the opinion of Brulle (2010) and Akintunde (2017), that through campaign on environmental issue peoples' behaviours towards the environment would change and they would know their responsibilities towards the environment.

The opinions of the respondents during the FGDs further lead credence to the results on influence of environmental campaign on people's behavioural changes towards the aquaculture habitation south, south, Nigeria.

A male discussant had this to say;

Through campaign on how to prevent water pollution, I became more conscious on people's action and implications on water with the resultant effects or fish farming activities

(FGD) – A male discussant from the Ministry of Environment and Natural Resources in Ondo State, Nigeria.

Also, another female discussant expressed that:
Through campaign on water protection, the public is now becoming more conscious on the need to eschew from actions and inactions that could negatively affects the aquatic habitat. I think achieving this goal will promote fish farming activities than how it was before.
(FGD) – A male discussant from the Ministry of Environment and Natural Resources in Rivers State, Nigeria.
Research Question Two: Will people acquire knowledge on aquaculture management through environmental strategy campaign in South-South, Nigeria?

Table 2: Showing frequency counts, simple percentages and means on will people acquire knowledge on aquaculture management through environmental campaign strategy in South-South, Nigeria?

S/N	ITEMS	SD	D	A	SA	Mean	Remarks
1.	Environmental campaign has broaden my knowledge on aquaculture management	3 3.3%	7 8%	19 2.1%	61 68%	3.5	**Accepted**
2.	Environmental campaign has influence on my knowledge of aquaculture management	48 58.3%	12 13.3%	16 18%	14 15.5%	1.9	**Rejected**
3.	My skills on how to protect environment for aquaculture activities has been enhanced through the environmental campaign strategy	8 9%	12 13.3%	11 12.2%	59 65.5%	3.4	**Accepted**
4.	My actions and inactions have been mimical to the environment that affecting aquaculture practice due to lack of information on it	9 10%	4 4.4%	31 34.4%	46 51.1%	3.3	**Accepted**
5.	Environmental campaign strategy will not make me to the aware on my behaviours that can hinder fish rearing	50 55.5%	21 23.3%	9 10%	10 11.1%	1.8	**Rejected**
6.	I become more exposed to activities that will not endanger rivers for effective practice of fish rearing	4 4.4%	3 3.3%	23 25.5%	60 67%	3.5	**Accepted**
	Total	**122** **22.5%**	**59** **65.5%**	**109** **20%**	**250** **46.2%**	**2.9**	**Accepted**

Table 2 presents results on the research question two which state that will people acquire knowledge on aquaculture management through environmental campaign strategy in South-South, Nigeria?

For the item (1), 61 (68%) among the respondents strongly agreed, 19 (21.1%) agreed, 7 (8%) disagreed while 3 (3.3%) strongly disagreed. On item (2), 14 (15.5%) of the respondents strongly agreed, 16 (18%) agreed, 12 (13.3%) disagreed, while 48 (53.3%) strongly disagreed. On item (13), 59 (65.5%) strongly agreed, 11 (12.2%) agreed, 12 (13.3%) disagreed, while 8 (9%) strongly disagreed.

On item (4), 46 (51.1%) strongly agreed, 31 (34.4%) agreed, 4 (4.4%) disagreed, while 9 (10%) strongly disagreed. On item (5), 10 (11.1%) among the respondents strongly agreed, 9 (10%) agreed, 21 (23.3%) disagreed, while 50 (50.5%) strongly disagreed. Finally, on item (16), 60 (67%) responses were obtained for strongly agreed, 23 (25.5%) agreed, 3 (3.3%) disagreed while 4 (4.4%) strongly agreed.

The results on table 2 indicates that through campaign on the environment people could acquire knowledge on aquaculture management. Since, the average mean of rating scale (x = 2.5) is less than the average mean of rating scale of four (x = 2.5). The result was supposed by Akintunde (2017) that the view was further corroborated by the opinion expressed during the FGDs. One of the challenges besieging the process is lack of information and education on how to manage the environment. Akintunde (2017) further contended that

through environmental campaign people could acquire information, through which they would start exhibiting lifestyle and actions that will not endanger the environment.

The campaign in recent time in the state has made people to be aware on the need to protect the water. Through the campaign, water pollution in the state, gradually is reducing.

(FGD) – A female discussant from the Ministry of Environment and Natural Resources, Edo State, Nigeria.

Similarly, another discussant had this to say:

I believed that water pollution is mainly due to lack of sensitization and awareness. Now, through this campaign the situation has changed.

(FGD) – A male discussant from the Ministries of Environment and Natural Resources, Bayelsa State, Nigeria.

Conclusion

Based on the results of the study, conclusions were made that environmental campaign as a strategy could influence positively people's behaviour and lifestyle towards aquatic habitat and also made people to acquire the appropriate knowledge of aquaculture management in South-South, Nigeria.

Recommendations

Premised on the conclusions of the study, the following recommendations were made:

The stakeholders on environmental protection i.e the Ministries of Environment and Natural Resources Management and allied authorities and agencies in the South-South, Nigeria should strengthened more efforts environmental protection through campaign.

Besides, intensive campaign on aquaculture management should be done on community basis and mass media devices (print and electronics) should be adopted to reach a large number of people irrespective of their country in South-South, Nigeria.

Furthermore, enlightenment should be made to focus on the benefits of protecting the aquatic habitat to individuals and the various economies in South-South, Nigeria.

In addition, the campaign on aquaculture should be specifically made on educating people on their actions and inactions that can affect fish farming negatively in South-South, Nigeria.

Finally, the campaign on aquaculture management should be done on a continued basis not it shall be disrupted to make the people to become more sensitive, aware and informed on their roles on environmental protection, especially on water management for the practice of their farming in South-South, Nigeria.

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