

NON-FORMAL ENVIRONMENTAL AWARENESS CREATION AND HEALTH EDUCATION FOR IMPROVED ENVIRONMENTAL SANITATION AMONG MARKET TRADERS OF ENUGU AND RIVERS STATES

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Abstract

The study examined non-formal environmental awareness creation and health education for improved environmental sanitation among market traders of Enugu and Rivers States. Two objectives, two research questions and two null hypotheses guided the study. The descriptive survey design was adopted. The population is made up of 17,024 market traders who are members of the Major and Ultra-Modern Market Traders' Unions in three (3) L.G.As of Enugu and four (4) L.G.As of Rivers States. A multistage sampling technique which included purposive, simple random and proportionate stratified sampling techniques were used to sample 1,626 market traders in Rivers and Enugu States. An instrument titled Non-Formal Environmental Awareness Creation and Health Education for Improved Environmental Sanitation Questionnaire (NEACHEIESQ) was used for data collection. Face and content validity were ensured by experts. The reliability coefficient of 0.722 was established with Cronbach alpha statistics. Key Informant Interview was used to serve as compliment to the questionnaire for data collection. It was found among others that awareness creation, health education improved environmental sanitation among traders in Enugu and Rivers State to a high level. It was recommended among others that there is need for more sensitization and creation of awareness on the impact of using plastic containers and plastic bags to defecate and urinate inside the shops in order to curb pollution of their immediate environment; the traders should be given more orientation on the need to segregate their wastes before disposal.

Keywords: Non-formal Environmental Adult Education , Environmental Adult Education, Awareness Creation, Health Education, and Improved environmental Sanitation.

Introduction

The activities of some market traders and most adults in general degrade the environment and affect the health of humans. It has been observed that most adult citizens who carry out their daily livelihood activities in most markets in Nigeria, specifically, Enugu and Rivers States co-mix their solid wastes before disposal. Majority of them indulge in open

defecation and urination where toilet facilities are not provided or where they exist and are not properly managed.

Market traders who operate in an unsanitary environment need to be educated and awareness created on the implication of their actions on the environment and their well-being. This is achieved through non-formal environmental adult education which as

viewed by Apel and Cammozi (1996) involves learning activities which occur outside formal learning institutions. It is against this background that this study was undertaken to ascertain the level to which awareness creation and health education through the non-formal environmental adult education exposed to the market traders in the areas of the study effected the expected changes for good sanitary market environment.

Non-Formal Environmental Adult Education

Non-formal education as viewed by Heimlich in Hassan, Osman and Pudín (2009) is an education that is driven by the objectives of the learners who often participate voluntarily in the learning process. The learning process usually occurs through activities or programmes organized by organizations that develop the programmes. Similarly, Eheazu (2016:40) viewed it as “an organized learning that occurs outside the formal system as a feature of broader activities from informal education.

Through non-formal education programmes, ordinary citizens like market men and women, youths that dropped out of school or those employed, business men and women, restaurant operators, hairdressers, mechanics, farmers and so on can be informed about the environment and their interdependence with the environment. This will enable them to acquire knowledge, skills and values and participate in solving complex environmental problems in the society. Educating market traders and creating awareness about their environment through a non-formal approach is appropriate for effective delivery of environmental adult education for improved environmental sanitation in the markets in Enugu and Rivers States.

Environmental Adult Education

UNESCO Tbilisi Declaration of 1997 in Eheazu (2016:28) defined environmental adult education as “a learning process that increases peoples’ knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters the attitudes, motivations and commitments to make informed decisions and take responsible action”. Similarly, Clover, Jayme, Hall and Follen (2013:27) emphasized that environmental adult education is “an amalgam of methods, analytical practices, theoretical perspectives, discursive lenses and epistemological technologies”. The objectives of environmental adult education which are consistent with the objectives of environmental education contained in the Tbilisi Declaration as noted by Odura-Mensah in Mbalisi (2016:91) are to:

- i. develop knowledge and understanding of the environment, the forces that contribute to its deterioration and how environmental quality could be improved;
- ii. identify specific chemical, biological, physical, psychological and social-cultural characteristics of the environment that constitute potential hazards to life and health;
- iii. develop skills for solving environmental problems and improving environmental quality;
- iv. develop appropriate attitudes and sense of responsibility that will enable man to live harmoniously with his environment;
- v. develop appropriate curricula for environmental education and train personnel for the management of natural resources;
- vi. develop aesthetic values that will encourage a culture of

- environmental beautification and maintenance;
- vii. plan appropriate action programmes and mobilize citizens to actively participate in the protection and restoration of the quality of our environment; and
- viii. promote among adults the practice of sustainable development to ensure a continuity of resource base.

From the discussion above, environmental adult education is a process by which adults gain knowledge and understanding of environmental issues, creates awareness, develop skills for resolving environmental problems and consequently equip citizens with the motivation and competencies required for the protection and management of resources in the environment for present and future generations.

Environmental Sanitation

Environmental sanitation as defined by Ghana's Ministry of Government and Rural Development (MLGRD) in Acheampong (2010:15) are "efforts or activities aimed at developing and maintaining a clean, safe and pleasant physical environment in all human settlements. It comprises a number of complementary activities, including the construction and maintenance of sanitary infrastructure, provision of services, public education, community and individual action, regulation and legislation".

Esrey, Potash and Shiff in Mbano and Ezirim (2015:395) equally noted that the aim of environmental sanitation is "to modify human environment towards the maintenance and promotion of health and prevention of diseases". From the foregoing, environmental sanitation involves all the activities geared towards the maintenance of clean, safe, healthy

environment in order to avert the outbreak of diseases in all human settlements. It is aimed at creating and maintaining necessary conditions in the environment that will promote public health and prevent diseases.

Environmental Sanitation Education Programme

Environmental sanitation education programme is a programme which is intended to raise concerns and educate the public and market traders about the physical environment that has been degraded over the years. The programme which was designed by the Ministry of Environment in Enugu and Rivers States through the Waste Management Agencies was to curb the problem of unsanitary conditions in the markets.. The programme focuses on keeping the environment clean, basic hygiene, avoiding food contamination, proper use of toilet facilities, discouraging traders from littering their surroundings and clogging drainages, and adequate waste management to foster healthy and safe environment for market traders. The sanitation exercise is usually carried out in all the major and ultra-modern markets every Thursday from 7am to 10 am during which shops are locked-up and traders are engaged in cleaning of the market and its surroundings.

Components of Environmental Sanitation Education Programme (ESEP)

Environmental sanitation education programme has different components which includes awareness creation, health education and waste management. For the purpose of this paper, awareness creation and health education components were discussed.

i. Awareness Creation

The key elements in environmental education as observed by Anijah-Obi (2001:34) are: “creation of awareness and understanding about the environment; recognizing man’s relationships, responsibility, attitudes and commitment to the environment; developing efficient and effective environmental management skills and strategies for the survival of present and future generations”. The main goal of creating awareness on sanitation in the market is to inform the traders on the need for cleaning their environment and to improve the quality of their lives and that of the environment on which they stay on daily basis.

ii. Health Education

The health of individuals is important for the achievement of socio-economic development of any nation. Health education as viewed by Rimande-Joel and Obiechina (2016) is geared towards preventing hazards in the environment as well as controlling environmental hazards in order to sustain the environment for quality life. Health education is one of the components of the programme which is used to educate the traders on health related issues and to establish the link between unsanitary environment and human health. The health education activities designed for market traders is in form of health talks, seminars, monitoring of their health status such as HIV and so on.

Statement of Problem

The sanitary conditions of most of the major and ultra-modern markets in Enugu and Rivers States can be described as sordid. The markets are usually littered with solid wastes of all sorts which are not properly managed and disposed. In addition, there are no proper drainages for the discharge of liquid wastes and run off for rain water inside some of the markets.

In most cases, these markets are not provided with adequate water supply and sanitation facilities. Consequently, some market traders and some market users engage in makeshift defecation with small plastic containers and plastic bags in their shops and urinate in nearby bushes and spaces which produce offensive odours and spread of diseases in the environment.

Improper hygienic behaviours like lack of proper hand washing after toilet use, urination in nearby bushes are being practised among the market traders and they contribute to the spread of diseases. In a bid to improve the environmental sanitation in the markets and impact good sanitation practises on the traders, the Waste Management Agencies in Enugu and Rivers States identified education specifically non-formal environmental adult education programme for traders in the market. The programme consists of many components two of which are awareness creation and health education.

In providing non-formal environmental adult education for the traders towards educating them for improved environmental sanitation, the agencies designed non-formal environmental sanitation education programme. The question is, to what level has awareness creation and health education through the non-formal environmental adult education exposed to the market traders in the areas of study effected the expected changes for good sanitary market environment? To answer this question is the problem of the study.

Objectives of the Study

The following objectives guided the study:

1. Investigate the level to which awareness creation through non-formal environmental adult education programme has improved environmental sanitation among market traders of Enugu and Rivers States;

- ascertain the level to which health education through non-formal environmental adult education programme has improved environmental sanitation among market traders of Enugu and Rivers States.

Research Questions

- To what level has awareness creation through non-formal environmental adult education programme improved environmental sanitation among market traders of Enugu and Rivers States?
- To what level has health education through non-formal environmental adult education programme improved environmental sanitation among market traders of Enugu and Rivers States?

Hypotheses

- There is no significant difference between traders in Enugu and Rivers States on the level to which awareness creation through non-formal environmental adult education programme has improved environmental sanitation in the markets.
- There is no significant difference between traders in Enugu and Rivers States on the level to which health education through non-formal environmental adult education programme has improved environmental sanitation in the markets.

Methodology

The descriptive survey design was adopted in this study. The population of this study consisted of all 17,024 members of the Major and Ultra-Modern Market Traders' Unions in the three (3) Local Government Areas of Enugu and four (4) Local

Government Areas of Rivers States respectively. A total of eight thousand, seven hundred and ninety-nine (8,799) traders from Enugu and eight thousand, two hundred and twenty five (8,225) market traders' union members of Rivers State, giving a total of seventeen thousand and twenty-four (17,024) market traders served as the population for the study (Membership Registers of different Market Traders' Unions in the seven (7) L.G.As of both states, 2017). The sample size of the study was 1,626 market traders (732 traders in Rivers and 894 traders in Enugu). A multistage sampling approach was adopted in this study. First the respondents were clustered into L.G.As. The purposive sampling technique was used to draw three (3) L.G.As that have major markets from Enugu State and four (4) L.G.As that have ultra-modern markets from Rivers State which are being monitored by the waste management agencies for environmental sanitation. A total of seven (7) L.G.As were drawn for the study and they are: Enugu State: Enugu East, Enugu North, and Enugu West; Rivers State: Eleme, Port Harcourt City, Obio/Akpor, and Oyigbo. Thirdly, a simple random sampling technique was used to draw one market from each of the Local Government Areas in both states. A total of seven (7) Major/Ultra-modern markets were used for the study.

Fourthly, a proportionate stratified sampling technique was used to draw 15% of the membership size of all the unions in the 7 markets drawn for the study. An instrument titled Non-Formal Environmental Awareness Creation and Health Education for Improved Environmental Sanitation Questionnaire (NFEACHEIESQ) was used for data collection. Face and content validity were ensured by experts. The reliability coefficient of 0.722 was established with Cronbach alpha statistics. Mean and standard deviation were used to answer the

research questions while the null hypotheses were tested with z-test at 0.05 alpha level of significance. Key Informant

Interview was used to serve as compliment to the questionnaire for data collection.

Results

Research Question One: To what level has awareness creation through non-formal environmental adult education programme improved environmental sanitation among market traders of Enugu and Rivers States?

Table 1: Weighted mean and standard deviation scores of traders in Rivers and Enugu State on the level awareness creation has improved environmental sanitation

s/n	Items	Traders in Rivers=716		Traders in Enugu= 837		Remarks Rivers	Remarks Enugu
		\bar{x}	Sd	\bar{x}	Sd		
1.	There is an increase in awareness that dirty market environment can result in the spread of diseases.	3.05	0.66	1.73	0.75	HL	LL
2.	There is increased awareness that poor health can result in loss of economic resources.	3.29	0.77	1.57	0.58	HL	LL
3..	The market environment should be swept on daily basis in order to maintain its aesthetic value	3.13	0.91	3.30	0.78	HL	HL
4.	Wastes generated daily are bagged and placed at dumpsites to reduce surface and ground water contamination	3.32	0.79	3.13	0.92	HL	HL
5.	We are taught not to litter the market environment with wastes.	3.43	0.87	1.60	0.67	HL	LL
6.	Keeping my surroundings clean to attract more customers to my shop is being practiced.	2.66	0.51	3.27	0.44	HL	HL
7.	Sanitation is every man's responsibility.	2.79	0.77	3.46	0.49	HL	HL
8.	Lack of participation in sanitation blocks the water drainage system in the market	3.15	0.84	3.44	0.52	HL	HL
9.	We are advised not to pour wastes into the flood during rainfall.	2.86	0.74	3.51	0.50	HL	HL
Grand mean and standard deviation		3.08	0.72	2.799999900000vvvv09	0.63	HL	HL

Table 1 revealed that weighted mean values of traders in Rivers State ranged from 3.43 to 2.66 and are all above the criterion mean value of 2.50. More so, the grand mean value of 3.08 showed that awareness creation activities has improved environmental sanitation in Rivers State to a high level. Awareness creation activities have revealed that dirty market environment can result in the spread of diseases, poor health can result in loss of

economic resources, market environment should be swept on daily basis in order to maintain its' aesthetic value, Wastes generated daily are bagged and placed at receptacles to reduce surface and ground water contamination in the market environment, the traders are taught not to litter the market environment with wastes, keeping their surroundings clean to attract more customers to their shops is being practiced, sanitation is every man's responsibility, lack of participation in

sanitation blocks the water ways and affects drainage system in the market and they are advised not to pour wastes into the flood during rainfall.

In Enugu State, the mean values on awareness creation activities for traders ranged from 3.13 to 3.51 and were above the criterion mean value of 2.50. The grand mean value of 2.79 showed that awareness creation activities have improved environmental sanitation in Enugu State to a high level. This showed that the respondents were made to be aware that the market environment should

be swept on daily basis in order to maintain its aesthetic value, wastes generated daily are bagged and placed at dumpsites to reduce surface and ground water contamination in the market environment, keeping their surroundings clean to attract more customers to their shops is being practiced, sanitation is every man's responsibility, lack of participation in sanitation blocks the water ways and affects drainage system in the market and they were advised not to pour wastes into the flood during rainfall.

Research Question Two: To what level has health education through non-formal environmental adult education programme improved environmental sanitation among market traders of Enugu and Rivers States?

Table 2: Weighted mean and standard deviation scores of traders in Rivers and Enugu State on the level health education has improved environmental sanitation

s/n	Items	Traders in Rivers		Traders in Enugu		Remarks Rivers	Remarks Enugu
		\bar{x}	Sd	\bar{x}	Sd		
10.	Keeping the market environment clean will improve the quality of the environment and well-being of the people.	3.39	0.63	3.41	0.64	HL	HL
11.	The washing of hands after toilet use is very much advocated for in the market through the programme.	1.87	0.69	1.34	0.48	LL	VLL
12.	Washing of toilets in the market should be done with disinfectants	3.48	0.50	3.43	0.52	HL	HL
13.	Traders are advised not to drink any water not certified by standard organization like NAFDAC	3.38	0.48	3.43	0.56	HL	HL
14.	Urinating in the open around the surroundings of the market is strongly condemned.	1.68	0.61	1.22	0.42	LL	VLL
15.	We are admonished not to urinate on the toilet floor in order to stop the breeding of disease.	3.39	0.49	1.55	0.49	HL	LL
16.	Traders no longer urinate in plastic containers and plastic bags inside their shops as these will guard against pollution of immediate environment.	1.47	0.49	3.41	0.65	VLL	HL
17.	Dirty and stagnant water are removed frequently from surroundings to reduce mosquito infestation.	3.51	0.54	1.64	0.50	VHL	LL
18.	Cooked food and some food stuff are always to be covered in order to prevent food contamination in the market	3.44	0.49	3.51	0.59	HL	VHL
Grand mean and standard deviation		2.85	0.55	2.55	0.54	HL	HL

Table 2 revealed that the weighted mean values agreed by the traders ranged from 3.51 to 3.38 and were above the criterion mean value of 2.50. The grand mean value of 2.85 is above the criterion mean value of 2.50 which implies that health education has improved environmental sanitation to a high level among traders in Rivers State. It was revealed that health education activities through non-formal environmental adult education programme improved environmental sanitation by educating the traders that keeping the market environment clean will improve the quality of the environment and well-being of the people, washing of toilets in the market should be done with disinfectants, they were advised not to drink any water not certified by standard organization like NAFDAC, they were admonished not to urinate on the toilet floor in order to stop the breeding of disease, dirty and stagnant water are removed frequently from surroundings to reduce mosquito infestation and cooked food and some food stuff are always to be covered in order to prevent food contamination.

In Enugu State, traders agreed on mean responses which ranged from 3.51 to 3.41 and were above the criterion mean value of 2.50. The grand mean value of 2.55 is above the criterion mean value of 2.50 which implies that health education has improved environmental sanitation to a high level among traders in Enugu State. It was revealed that health education activities through non-formal environmental adult education programme improved environmental sanitation by educating the traders in Enugu State that Keeping the market environment will improve the quality of the environment and well-being of the people, washing of toilets in the market should be done with disinfectants, they were advised not to drink any water not certified by standard organization like NAFDAC, they no longer urinate in plastic containers and plastic bags inside their shops as these will guard against pollution of immediate environment, cooked food and some food stuff are always to be covered in order to prevent food contamination is being practised in the market.

Hypothesis One: There is no significant difference between traders in Enugu and Rivers States on the level to which awareness creation through non-formal environmental adult education programme has improved environmental sanitation in the markets.

Table 3: Independent samples z-test of the mean difference between traders in Enugu and Rivers State on the level to which awareness creation through non-formal environment adult education programme has improved environmental sanitation in the markets

Location	N	\bar{x}	Sd	Df	z-cal.	z-crit.	Remark
Traders in Rivers	716	27.689	5.385	1551	12.748	1.96	Statistically significant
Traders in Enugu	837	25.011	2.612				

Table 3 revealed that traders in Rivers State have mean and standard deviation scores of 27.689 and 5.385 while traders in Enugu State have mean and standard deviation scores of 25.011 and 2.612 respectively. With a degree of freedom of 1551, the calculated z-value of 12.748 is

greater than the critical z-test value of 1.96 therefore, the null hypothesis is rejected. By implication, there is a significant difference between traders in Enugu and Rivers States on the level to which awareness creation through non-formal environmental adult education programme

has improved environmental sanitation in the markets.

Hypothesis Two: There is no significant difference between traders in Enugu and Rivers States on the level to which health education through non-formal environmental adult education programme has improved environmental sanitation in the markets.

Table 4: Independent samples z-test of the mean difference between traders in Enugu and Rivers State on the level to which health education through non-formal environment adult education programme has improved environmental sanitation in the markets

Location	N	\bar{X}	Sd	Df	z-cal.	z-crit.	Remark
Traders in Rivers	716	25.631	1.603	1551	28.726	1.96	Statistically significant
Traders in Enugu	837	22.947	2.013				

Table 4 revealed that traders in Rivers State have mean and standard deviation scores of 25.631 and 1.603 while traders in Enugu State have mean and standard deviation scores of 22.947 and 2.013 respectively. With a degree of freedom of 1551, the calculated z-value of 28.726 is greater than the critical z-test value of 1.96 therefore, the null hypothesis is rejected. By implication, there is a significant difference between traders in Enugu and Rivers States on the level to which health education through non-formal environmental adult education programme has improved environmental sanitation in the markets.

Discussion of Findings

Awareness Creation and Improved Environmental Sanitation in the Market

The findings revealed that awareness creation has improved environmental sanitation in Rivers State to a high level. Awareness creation activities have revealed that dirty market environment can result in the spread of diseases, poor health can result in loss of economic resources, there is need for market environment to be swept on daily basis in order to maintain its aesthetic value, they are taught that wastes generated daily can be bagged and placed at collection points to reduce surface and ground water contamination in

the market environment, they are taught not to litter the market environment with wastes, keeping their surroundings clean to attract more customers to their shops is being practiced, sanitation is every man's responsibility, lack of participation in sanitation blocks the water ways and affects drainage system in the market and they were advised not to pour wastes into the flood during rainfall.

In Enugu State, it was shown that awareness creation activities have improved environmental sanitation to a high level. The traders admitted that they were made to know that the market environment should be swept on daily basis in order to maintain its aesthetic value, wastes generated daily are to be bagged and placed at collection points to reduce surface and ground water contamination in the market environment, keeping their surroundings clean to attract more customers to their shops is being practiced, sanitation is every man's responsibility, lack of participation in sanitation blocks the water ways and affects drainage system in the market and they were advised not to pour wastes into the flood during rainfall.

The study has been able to reveal the role of awareness creation in the improvement of environmental sanitation as indispensable. This is supported by

Anijah-Obi, Ukata and Bisong (2015) who reported that environmental awareness has a significant relationship with school sanitation in terms of classroom sanitation, school compound sanitation and provision of refuse dumps. The possible reason why awareness creation has the power to improve sanitation in the environment is not far from the fact that knowledge is power. Still in the same line of thought, Hassan, Osman and Pudim (2009) reported that the non-formal environmental education activities such as (campaigns, environmental talks) increases public awareness on the necessity of environmental protection. There is no gainsaying that traders' participation in awareness creation activities on environment sanitation enabled them to know how to effectively sanitize the environment of debris. Traders have shown that adequate information on the importance of cleanliness of their immediate environment have revived their interest on environmental sanitation activities. These traders have shown that they have acquired education and information through awareness creation on the indispensability of clean market environment. The researcher is of the opinion that some of the poor attitudes of traders in these two states were as a result of poor information management and lack of enough sensitization on the importance of keeping the surroundings of the market environment clean.

Health Education and Improved Sanitation in the Market

The finding revealed that health education has improved environmental sanitation to a high level among traders in Rivers State. It was revealed that health education activities through non-formal environmental adult education programme improved environmental sanitation by educating the traders that keeping the market environment clean will improve the

quality of the environment and well-being of the people, washing of toilets in the market should be done with disinfectants, they were advised not to drink any water not certified by standard organization like NAFDAC, they were admonished not to urinate on the toilet floor in order to stop the breeding of diseases, dirty and stagnant water are removed frequently from surroundings to reduce mosquito infestation and cooked food and some food stuff are always to be covered in order to prevent food contamination.

Traders in Enugu State reported that health education has improved environmental sanitation to a high level among traders. It was revealed that health education activities through non-formal environmental adult education programme improved environmental sanitation by educating the traders in Enugu State that Keeping the market environment will improve the quality of the environment and well-being of the people, washing of toilets in the market should be done with disinfectants, they were advised not to drink any water not certified by standard organization like NAFDAC, respondents no longer urinate on plastic containers and plastic bags inside their shops as these will guard against pollution of immediate environment, cooked food and some food stuff are always to be covered in order to prevent food contamination is being practised in the market.

The traders in the both states have admitted to the fact that health education activities enhanced knowledge development and practice of environmental sanitation. This agrees with the assertion of WHO in Rimande-Joel and Obiechina (2016) which maintained that health education which is one of the component of the programme, comprises of consciously constructed opportunities for learning which involves some form of communication designed to improve health literacy, knowledge, and developing

life skills which are conducive to individual and community health. To impact knowledge of health awareness through health education activities will awaken the consciousness of the traders that health is wealth and not money and bring about a change in behaviour towards unsanitary practices. The finding is in line with Mbalisi and Offor (2016) who posited that environmental adult education programme serve as approaches through which appropriate knowledge of and attitudes towards the environment and its associated problems can be developed in the people of a region.

The lack of good hygiene practices among some of the traders can be associated with some variables such as: their low educational attainment since many of the traders did not receive tertiary education, laziness, fear of disease contamination from public toilets, fear of loss of customers and money to be paid for using the toilets as indicated by some of the traders and mainly female traders during the interview. This is in line with Awa and Olusegun (2013) who reported that illiteracy, ignorance, negligence and laziness are the major disposing factors that aided sellers in Bodija Market in illegal dumping of refuse in the environment. Their study equally revealed that the sellers were not hygienic thus contributing to the pollution in the market. Educating the market traders on the platform of health education component of the programme will significantly develop their knowledge of environmental sanitation and seek to avoid unsanitary practices and negative behaviour that are dangerous to health and the environment.

The hypotheses tested showed that there was a significant difference between the respondents in the study areas with regard to the variables tested. This can be attributed to certain factors such as differences in facilitators, approaches used by the facilitators since they were from

different states and differences in geographical location of the study areas.

The report from the key informant interview complimented the statistical result of this study. The director Environmental Health/Operations Rivers State Waste Management Agency Mrs Gloria Obe and the Public Relations Officer Enugu Waste Management Agency Mrs Chinelo Obi reported that environmental sanitation is carried out in ultra-modern and major markets in their states. They also reported that through the programme, awareness creation and health education is carried out. They equally reported that there has been a lot of improvement in the sanitation in the market and change in behaviour of the traders. Some of the union leaders such as High chief Stainless Emenike in Mile 1 Market and Dennis Nwachukwu in Obgete Main Market also reported that the awareness creation and health education activities through the environmental sanitation programme have improved sanitation in the markets. A trader in Mile 1 Mrs Maduako Ngozi also reported that all the traders participate in the sanitation exercise otherwise the persons' shop will be locked up. She equally reported that sanitation has improved in the market. In her words, she said "*if you have been in this Port Harcourt for many years , you will notice the difference, before this time, traders litter the surroundings with wastes but that has reduced so the market is clean now*"

Conclusion

Based on the findings of the study, the researcher concludes that the awareness creation and health education components of the programme has increased awareness of environmental sanitation as well as improved good sanitary practices in the markets in the study areas.

Recommendations

On the basis of the findings of the study, the following recommendations were made:

- i. There is need for the waste management agencies and NGOs to further inform and educate the traders on regular basis on how to desist from accumulation of wastes in their environment as it contaminates surface and ground water. More so, the traders should be enlightened that dirty environment can scare away their customers from the market which can lead to poor and reduced sales.
- ii. The public health worker should in conjunction with the waste management agencies and NGOs paste posters and pictures in strategic places and notice boards that will boldly and clearly display the adverse consequences of not keeping the market clean as it aids in the breeding of diseases and rodents.

References

- Acheamong, T.P. (2010). Environmental sanitation management in the Kumasi metropolitan area. Accessed on April 15th 2017, from <http://ir.knust.edu.gh/bitstram/>
- Anijah-Obi, F.N. (2001). *Fundamentals of environmental education and management*. Calabar: University of Calabar Press.
- Anijah-Obi, F.N., Ukata, B.N., & Bisong, N.N. (2015). Environmental awareness and school sanitation in Calabar Metropolis of Cross River State, Nigeria. *Journal of Education and Practice*, 6 (4), 64-71.
- Appel, H., & Camozzi, A. (1996). *Adult environmental education: A handbook on context and materials*. Bonn: DVV.
- Awa, P.T., & Olusegun, A.J. (2013). Pollution in urban market: The case of Bodija market Ibadan, Nigeria. *Developing Country Studies: International Institute for Science, Technology and Education (IISTE) Journal*, 3(13), 53-65.
- Clover, D.E., Jayme, B.D.O., Hall, B.L., & Follen, S. (2013). *The nature of transformation: Environmental adult education. Transforming human-earth relations*. Rotterdam: Sense Publisher.
- Eheazu, B.A. (2016). *Fundamentals of Environmental adult education*. Port Harcourt: University of Port Harcourt Press.
- Hassan, A., Osman, K., & Pudim, S. (2009). The adults' non-formal environmental education (EE): A scenario in Saban Malaysia. *Science Direct: Procedia Social and Behavioural Sciences* 1, 2306-2311.
- Mbalisi, O.F. & Offor B.O. (2016). Environmental adult education for sustainable development in the Niger Delta Region of Nigeria. *Niger Delta Journal of Education*, 8 (2), 10-21.
- Mbalisi, O.F. (2016). *Issues and problems in environmental adult education*. In G.Adekola, & M.A.Oyebamiji (Eds.) *Adult education and the environment: A book of tributes and readings*. Port Harcourt: Pearl Publishers.
- Mbano, P.E., & Ezirim, O.N. (2015). Capacity building strategy for sustainable environmental sanitation in Imo State. *Journal of Emerging Trends in Economics and Management Science (JETEMS)*, 6 (8), 395-402.
- Rimande-Joel, R. & Obiechina, G.O. (2016). *Impact of health education on environmental sustainability in Nigeria*. In G.Adekola & M.O.Oyebamiji (Eds), *Adult education and the environment: A book of tributes and readings*. 256-269. Port Harcourt: Pearl Publishers.