

## **PATTERN, COMPETENCE AND DISTRIBUTION OF ENVIRONMENTAL HEALTH OFFICERS IN BENUE STATE, NIGERIA**

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### **ABSTRACT**

The study was designed as a descriptive cross sectional study aimed at assessing the “Pattern, Competence and Distribution of Environmental Health Officers in Benue State”. The study was carried out in Benue State Nigeria using Environmental Health Officers Registration Council of Nigeria (EHORECON), Benue State Local Government Service Commission and Environmental Health Officers Association of Nigeria (EHOAN) Benue state chapter Environmental Health Officers in Benue State, totaling 125 in number. Instrument used in data collection include a semi-structural questionnaires which were pretested and validated for this research purpose. Data collection was performed by the researcher who personally visited all the 23 Local Government Areas in the State of study. Data analysis was performed on SPSS version 23 using descriptive method of frequency distribution as well as percentage distribution. Means and standard deviations were also computed for the rating scores obtained. The Chi- square ( $\chi^2$ ) test of goodness of fit was used to test for data association at 5% level of significance. The results obtained that the functional distribution of environmental health officers showed high overall mean of 3.32 (std dev =0.37). The highest mean score was obtained in the inspection of premises (3.97±0.25), followed by food and meat hygiene inspection (3.97±0.51) and pollution control (3.94±0.35). On the competence and readiness of EHOs by the state of study, non-training of EHOs and Non- employment of EHOs are the major factors and are both factors observed (mean score= 4 points each) with less score on poor government policies. The consequences resulting from poor utilization of environmental health officers in Benue state also showed high mean score with highest scores of 3.98 and 3.94 each found on poor environmental sanitation and poor hygiene practices. Assessment for measures of improving environmental health practices shows that training of EHOs is the most important measure of improving environmental health practices as the respondents strongly agreed with the mean value of (4.00). The result also clearly showed that the duties of the EHOs are quite enormous as well as clear indication of poor readiness for environmental health officers in the study area. Proper funding and training is required in this field in order to prevent the devastating consequences of poor utilization of EHOs.

**Keywords:** Poor utilization, Premises, Food and meat hygiene inspection, Poor readiness, Functional distribution.

## INTRODUCTION

### *Background to the Study*

The World Health Organization (WHO) defines environmental health as theory and practice of assessing and controlling factors in the environment that can potentially affect human health; and disease that are determined by factors in the environment (WHO, 2008a). This comprises those aspects of human health, including quality of life, that are determined physical, biological, social, and psychosocial factors in the environment as well as involving practice of assessing, correcting, controlling, and preventing those factors in the environment that can potentially affect adversely the health of present and future generations (WHO,1945).

Environmental health is the health consequences of interactions between human populations and the whole range of natural, built and social environmental factors (Adebayo, 2012). The environmental health problem starts from the air we breathe, the food we eat, the water we drink and the beds we sleep on. Many aspects of human wellbeing are influenced by the environment, and many diseases can be initiated, promoted, sustained, or stimulated by environmental factors. This makes the interactions of people with their environment important component of public health. These problems become more peculiar in some less developed countries where policy for physical development and developmental control are merely on paper without being implemented. In most states and local areas of the low income countries, apart from the problem associated with low income, large proportion of people are in a state of struggle with malnutrition, disease, and ill-health. The cause of the struggle revolves around; lack of access to appropriate health service, lack of access to safe drinking water and living without appropriate sanitation facilities.

These challenges have turned most local areas to endemic regions for diseases like typhoid fever, cholera, and diarrhea illnesses. For instance, on water availability, some 1.1 billion people go without safe drinking water, and 2.4 billion people lack access to adequate sanitation. Consequently, more than 2.2 million people die each year from diseases related to contaminated drinking water and poor sanitation. A report captured by Rennet and Rogoff (2003) indicated that the situation is expected to get worse as areas of fresh water scarcity and water stress expand. Also, there is a growing recognition that improving infrastructure is crucial, yet most countries do not factor infrastructure in an integrated manner.

An estimated 24 percent of the global disease burden and 23 percent of all deaths can be attributed to environmental factors. Also 25 percent of all deaths in developing nations were attributable to environmental causes, while only 17 percent of deaths were attributed to such causes in the developed world (WHO, 2008b). In 2002 alone, 23 percent of all deaths in Africa were attributed to environmental risks factors (WHO, 2008b). According to a recent report by the World Health Organization (2008a), nearly one quarter of all deaths and of the total disease burden globally can be attributed to the environment. In addition, environmental risk factors play a role in more than 80% of the burden of disease measured by the World Health Organization (2011a). Most developed nations such as America, Canada and European Union are still battling with environment related problem though at a reduced rate when compared with developing nations.

This research has addressed availability of environmental health officers and factors associated with spatial and functional distribution in Benue State. Environment plays an important role in human development and health. Researchers have linked exposures to some environmental hazards with specific diseases. About one quarter of the global disease burden and one third of

that in developing nations could be reduced through available environmental health surveillance, interventions and strategies (WHO, 2010).

Environment is the totality of all external conditions and influences to which an organism is subjected. On the other hand, health, according to the World Health Organization, is said to be a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. However, a healthy environment is essential to the well-being of the planets and the productivity of its inhabitants, who depend solely on it for the air they breathe in, the water they drink, as well as the food they eat (WHO/UNEP, 2008). This has called for the role of environmental health officers in environmental health and sanitation.

### ***Objectives of the Study***

#### ***General objective***

The general objective of this research work is to investigate the pattern, competence and distribution of environmental health officers in Benue State, Nigeria.

#### ***Specific Objectives***

The following are the specific objectives of this study:

- i. To assess the function patterns for distribution of Environmental Health Officers in Benue State, Nigeria.
- ii. To assess the competence and readiness for Environmental Health Officers in Benue State, Nigeria.
- iii. To determine the environmental consequences of poor utilization of Environmental Health Officers in Benue State, Nigeria.
- iv. To assess measures of improving environmental health practices in Benue state Nigeria.

#### ***Research Hypotheses***

The following research hypotheses were formulated and tested to establish empirical evidence on the availability of environmental health officers, factors associated with spatial and functional distribution.

- 1. Ho:** There are no significant differences in the functions of environmental health officers between their places of deployment.  
**H <sup>^</sup>:** There are significant differences in the functions of environmental health officers between their places of deployment.
- 2. Ho:** There are no significant differences in the factors associated with availability of environmental health officers between the LGAs in Benue state.  
**H <sup>^</sup>:** There are significant differences in the factors associated with availability of environmental health officers between the LGAs in Benue state.
- 3. Ho:** There are no significant differences in the availability of environmental health officers between the LGAs in Benue state.  
**H <sup>^</sup>:** There are significant differences in the availability of environmental health officers among LGAs in Benue state.

**4. Ho:** There are no significant differences in spatial pattern and functional distribution of EHOs between the LGAs in Benue State.

**H <sup>^</sup>:** There are significant differences in spatial pattern and functional distribution of EHOs between the LGAs in Benue State.

## **MATERIALS AND METHODS**

### ***Study Design***

The research design used was descriptive survey. Descriptive surveys collect Data from a representative sample of the large population in order to treat the distribution and interaction of variables and make deductions.

### ***Study Population***

The study population includes all the environmental health officers in Benue state, Environmental Health Officers Registration Council of Nigeria (EHORECON), Benue State Local Government Service Commission and Environmental Health Officers Association of Nigeria (EHOAN) Benue state chapter estimated a total population of 125 Environmental Health Officers.

### ***Sampling Methods***

Study participants were not sampled rather the entire study population of 125 environmental health officers in Benue state were used for the study. This technique was employed to ensure that all areas where environmental health officers are employed were covered. This was to ensure that other areas are not denied of the opportunity and to avoid confinement of information to a particular area.

### ***Instrument for data collection***

A structured pretested questionnaire was used for collection of data. The questionnaire was divided into six sections (A, B, C, D, E and F). Section A was on demographic information of the study participants /respondents. Section B sort information on the functions and duties of Environmental Health Officers in Benue state, Section C obtained information on factors associated with non-availability of EHOs in Benue state, Section D seeks information on spatial pattern and functional distribution of EHOs in the study area, Section E analyzed the environmental consequences resulting from non-availability of EHOs in Benue state while Section F sort information on measures of improving environmental health and sanitation in Benue state. A-4 point Rating Scale was used in rating individual responses. With the four point rating scale, Strongly Agree (SA) was assigned with the highest point of 4, followed by Agree (A) - 3 points, disagree (D) - 2 points and strongly disagree (SD) with 1 point.

### ***Validity of the Instrument***

The questionnaire instrument used for data collection was validated by face and content validity. The questionnaire was developed by the researcher with the contributions of the two experienced Environmental Health specialists and was subjected for correctness to the research supervisor.

### ***Reliability Test***

Prior to the study data collection, a pilot survey was performed with the study questionnaire involving 25 participants and the data collected were scored and subjected to reliability test through Spearman Rank correlation technique and a reliability coefficient (r) of 0 .805 was obtained.

### ***Method of Data Collection***

Data collection was performed by the researcher who personally visited all the 23 Local Government Areas to ensure that the entire selected respondents were issued copies of questionnaires to answer after obtaining permission from the Directors and HODs. The researcher first sought and obtained informed consent from the respondents before administering the questionnaire. Data collection process was performed in English Language and in some case, with 'Pidgin English'. The copies of the questionnaires were collected on the same day after the completion by each respondent. Meanwhile no copy of the questionnaire was lost or damaged as all were dully completed and returned to the researcher.

Data was also collected from Environmental Health Officers Registration Council of Nigeria (EHORECON). The entire data collection processes were completed in one month across the LGAs in Benue State.

### ***Method of Data Analysis***

Data analysis was performed on SPSS version 23 using descriptive method of frequency distribution as well as percentage distribution. Means and standard deviations were computed for the rating scores obtained and the cut-off point for decision making was obtained by summing up the ratings 4,3,2,1 and dividing by the number of ratings. The mean rating was 2.50. The basis for decision is therefore 2.50 and above =Agree, while below 2.50 = Disagree. The Chi- square ( $\chi^2$ ) test of goodness of fit was used to test for data association at 5% level of significance.

### ***Ethical Consideration***

The study has the approval of Department of Public Health, School of Health Technology, Federal University of Technology, Owerri (FUTO). Also, an approval was obtained from the Benue State Ministry of Health. The researcher also respected the subjects and their personality which led to their compliance. The researcher explained clearly to the respondents that participation was voluntary so that none of respondents was forced to participate in answering the questionnaire. The researcher equally maintained respondent confidentiality privacy when administering the questionnaire.

## **RESULTS**

### **Demographic Characteristics of the Study Participants**

The distribution for demographic characteristics of the study respondents is presented on Table 1. In terms of age distribution, the age that contained the largest frequency is the 51 years and above having 51 (40.8%), followed by 20-35 years with 25 (20%), 41-45 years with 17 (13.6%) while age group 36-40 and 46-50 years have 16 (12.8%) each. These show that majority of the respondents are almost due for retirement having fallen between the age of 51 years and above. The implication is that there will be shortage of environmental health personnel in the study area in the near future. 104 (83%) of the total respondents are males, while 21 (17%) are females. The disparity in sex ratio i.e. 104 and 21 females shows lack of interest from females, nature of the work, and discrimination of the profession, culture and religion. This in some cases makes access to Muslims dominated areas impossible leading to continues poor sanitary conditions of such premises.

The job position attainment is also essential to the performance of an Environmental Health Officer. Environmental health technicians have the highest proportion 55 (44 %) and next to

them were the technologists 50 (40 %). Others include the Environmental Health Officers constitute 12 (9.65 %) and the Environmental Health Assistants 8 (6.4 %).

Disparity in position attainment is as a result of zeal to pursue higher education, non-availability of training institution in the study area, lack of commitment by the government to sponsor on the field training, tight working conditions and lack of funds. These have resulted to inadequate professionals and Environmental Health Officers in the state leading to poor sanitation conditions.

The date of employment of the respondents below shows that 51 (40.8%) are employed between 1987-2007, 38 got employed (30.4 %) within 1976-1986 and 36 (28.8%) are employed not before 2008. This result shows that no mass employment has been carried out for quite a long period of time, and that if the trend continues, environment health practice will go into extinction.

**Table 1: Demographic Characteristics of the Study Participants**

<b>Demographic</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>Age (in Years)</b>		
20 -35	25	20.0
36 – 40	16	12.8
41 -45	17	13.6
46 -50	16	12.8
51 and above	51	40.8
Total	125	100
<b>Sex</b>		
Male	104	83.0
Female	21	17.0
Total	125	100
<b>Post Held</b>		
Environmental Health Assistant	8	6.4
Environmental Health Technician	55	44
Environmental Health Technologist	50	40
Environmental Health Officer	12	0.7
<b>Date of Employment</b>		
1976 - 1986	38	30.4
1987 -2007	51	40.8
2008 - Date	36	28.8
Total	125	100

### Functional Distribution of Environmental Health Officers

On table 2, the functional distribution of environmental health officers was such that the highest mean score was obtained in the inspection of premises (3.97±0.25) followed by food and meat hygiene inspection (3.97±0.51) and pollution control (3.94±0.35). The lowest score was obtained for health education and promotion (2.85) followed by noise control and air quality management at 2.98 each. The overall mean (std dev) was found at 3.32 (0.37), indicating a high strong agreement to functional distribution of environmental health officers in the study area. All the functions assessed recorded high mean score. The result also clearly showed that the duties of the EHOs are quite enormous.

Table 2: Assessment for Functional Distribution of Environmental Health Officers

S/N Functions and Duties	SA	A	D	SD	Mean	SD(±)	Decision
1. Waste collection and disposal.	66	57	2	0	3.51	0.53	Agree
2. Inspection of premises	122	0	3	0	3.97	0.25	Agree
3. Health education and promotion	53	72	0	0	2.85	0.99	Agree
4. Food and meat hygiene inspection	122	0	3	0	3.95	0.51	Agree
5. Pollution control	121	20	4	0	3.94	0.35	Agree
6. Noise control	0	122	3	0	2.98	0.15	Agree
7. Pest and vector control	6	115	4	0	3.02	0.28	Agree
8. Air quality management	0	124	3	0	2.98	0.15	Agree
9. Occupational health and safety	6	115	4	0	3.02	0.28	Agree
10 Water and sanitation	2	120	3	0	2.99	0.20	Agree
<b>Cluster Mean</b>	<b>3.32±0.37</b>						<b>Agreed</b>

### Competence and Readiness for Environmental Health Officers in Benue State

The result on Table 3 represents the competence and readiness for environmental health officers in Benue State. At the moment, non-training of EHOs and Non-employment of EHOs are the major factors and are both factors of highest score with 4 points each. Other factors of high score include negligence of the occupation by people (mean =3.01), absence of training institutions (mean =3.0), hazardous nature of the job (mean =3.0), poor government policy (mean =2.99), and lack of awareness (mean =2.99). High mean score on such negative items is a clear indication of poor competence and readiness for environmental health officers in the study area. On the other hand, factors such as lack of funds for proper training and poor attitude of the executive officer both scored a low point, which depicts poor approach towards financing adequate attaining of EHOs and reluctance towards allowing the EHOs to assume executive officers.

**Table 3: Competence and readiness for Environmental Health Officers in Benue State**

S/N	Factors	SA	A	D	SD	Mean	St.dev	Decision
1.	Non-training of EHOs.	125	0	0	0	4.00	0.00	Agree
2.	Non- employment of EHOs	125	0	0	0	4.00	0.00	Agree
3.	Absence of training institutions	0	125	0	0	3.00	0.00	Agree
4.	Ignorance of people above EH	0	125	0	0	3.00	0.00	Agree
5.	Poor government policy	0	124	1	0	2.99	0.08	Agree
6.	Negligence of the occupation by People	1	124	0	0	3.01	0.09	Agree
7.	Lack of awareness	1	123	0	0	2.99	0.20	Agree
8.	Hazardous nature of the job	0	125	0	0	3.00	0.20	Agree
9.	Lack of funds for proper training	1	1	106	7	1.97	0.03	Agree
10	Poor attitude of the executive officer	0	2	120	3	1.99	0.20	Agree
<b>Cluster Mean</b>						<b>3.00±0.06</b>		<b>Agreed</b>

### Consequences of Poor Utilization of Environmental Health Officers in Benue State

The consequences resulting from poor utilization of environmental health officers in Benue state showed that filthy environment and disease outbreak were the most consequences as the respondents strongly agree with the same mean values of (mean score= 3.99) respectively.

The respondents also agreed with poor environmental sanitation and poor hygiene practices with the value means of (3.98) and (3.94) respectively. The response on food contamination and poisoning was agreed by the respondents, with a mean value of (3.01). With respect to flooding, uncontrolled development, high death rate and deforestation, the respondents agreed with the same mean of (3.00) respectively.

In general, the respondents agreed with all the consequences resulting from non-availability of Environmental Health Officers in Benue state with a cluster mean value of  $3.49 \pm 0.16$ . It can be established going by this result that the insanitary conditions of the study area are as a result of absence of trained personnel, retirements and deaths of officers.



**Table 4: Consequences Resulting from Poor Utilization of Environmental Health officers in Benue State**

SN	Consequences	SA	A	D	SD	Mean	SD( $\pm$ )	Decision
1.	Filthy environment	124	1	0	0	3.99	0.09	Agree
2.	Disease outbreak	124	1	0	0	3.99	0.89	Agree
3.	Flooding	0	125	0	0	3.00	0.00	Agree
4.	Uncontrolled development	0	125	0	0	3.00	0.00	Agree
5.	High death rate	0	125	0	0	3.00	0.00	Agree
6.	Poor hygiene practices	117	8	0	0	3.94	0.25	Agree
7.	Indiscriminate dumping of waste	120	5	0	0	2.96	0.20	Agree
8.	Food contamination and poisoning	112	4	0	0	3.01	0.01	Agree
9.	Poor environmental sanitation	123	2	0	7	3.98	0.16	Agree
10	Deforestation	0	125	0	3	3.00	0.00	Agree
<b>Cluster Mean</b>						<b>3.49</b>	<b>0.16</b>	<b>Agreed</b>

### Measures of Improving Environmental Health Practices

Measures of Improving Environmental Health Practices show that training of EHOs is the most important measure of improving Environmental Health practices as the respondents strongly agreed with the mean value of (4.00), followed by good hygiene practices, regular waste collection and disposal, and regular inspection of food premises with the mean value of 3.98, 3.98 and 3.94 respectively. The respondents also agreed with Health education and promotion, Policy implementation, Enforcement of sanitation laws, Enlightenment campaign on environmental sanitation issues and Controlled waste management site for 3.01, 3.00, 3.00, 3.00 and 3.00 respectively.

In general, the respondents agree with all Measures of Improving Environmental Health Practices with a cluster mean value of  $3.39 \pm 0.06$ .

**Table 5: Measures of Improving Environmental Health Practices**

S/N	Measures	SA	A	D	SD	Mean	SD ( $\pm$ )	Decision
1.	Training of EHOs.	125	0	0	0	4.00	0.00	Agree
2.	Policy implementation	0	125	0	0	3.00	0.00	Agree
3.	Enforcement of sanitation laws	0	125	0	0	3.00	0.00	Agree
4.	Enlighten campaign on environmental sanitation issues	0	125	0	0	3.00	0.00	Agree
5.	Health education and promotion	1	124	0	0	3.01	0.09	Agree
6.	Retraining of environmental health officers	0	125	0	0	3.00	0.00	Agree
7.	Regular inspection of food premises	117	8	0	0	3.94	0.26	Agree
8.	Controlled waste management site	0	125	0	0	3.00	0.00	Agree
9.	Regular waste collection and disposal	122	3	0	0	3.98	0.15	Agree
10.	Good hygiene practices	12	3	2	0	3.98	0.13	Agree
<b>Cluster Mean</b>							<b>3.39<math>\pm</math>0.06 Agreed</b>	

### *Testing of Hypotheses*

**RESEARCH HYPOTHESIS ONE: There are no significant differences in the functions of environmental health officers between their places of deployment.**

Table 6: Chi- square ( $X^2$ ) test on functions of environmental health officers between their places of deployment.

Response	O	E	Level of sig.	$X^2$ cal	$X^2$ tab	Df	Decision
<b>SA</b>	377	41.89	0.05	12.69	5.99	3	Rejected
<b>A</b>	745	82.78					
<b>D</b>	56	6.22					
<b>SD</b>	0	0					

Since the calculated  $X^2$  12.69 is greater than tabulated value 5.99 at 5% level of significance at 3 degree of freedom (d f), the null hypothesis ( $H_0$ ) is rejected and the alternate hypothesis is accepted.

**RESEARCH HYPOTHESIS TWO: There are no significant differences in the factors associated with availability of Environmental Health Officers between the LGAs in Benue State.**

**Table 7: Chi- square (X 2) test on factors associated with availability of environmental Health officers between the LGAs in Benue state.**

Response	O	E	Level of sig.	X 2 cal	X 2 tab	DF	Decision
SA	253	28.11	0.05	10.66	5.99	3	Rejected
A	749	83.22					
D	227	25.22					
SD	10	1.11					

Since the calculated  $X^2 = 10.66 > 5.99$  tabulated at 5% level of significance at 3 degree of freedom (d f), the null hypothesis ( $H_0$ ) was rejected and the alternate hypothesis accepted.

**RESEARCH HYPOTHESIS THREE: There are no significant differences in the Consequences Resulting from Non-availability of Environmental Health Officers between LGAs in Benue state.**

**Table 8: Chi- square (X 2) test on Consequences Resulting from Non-availability of Environmental Health Officers between LGAs in Benue state.**

Response	O	E	Level of sig.	X 2 cal	X 2 tab	DF	Decision
SA	609	66.78	0.05	22.31	5.99	3	Rejected
A	641	71.22					
D	0	0					
SD	10	1.11					

Since the calculated  $X^2 = 22.31$  is greater than tabulated value 5.99 at 5% level of significance at 3 degree of freedom (d f), the null hypothesis ( $H_0$ ) is rejected and the alternate hypothesis is accepted.

**RESEARCH HYPOTHESIS FOUR: There are no significant differences in spatial pattern and functional distribution of EHOs between the LGAs.**

**Table 9: Chi- square (X 2) test on spatial pattern and functional distribution of EHOs between the LGAs in Benue State.**

Response	O	E	Level of sig.	X 2 cal	X 2 tab	DF	Decision
SA	625	89.29	0.05	11.86	5.99	3	Rejected
A	106	17.67					
D	19	3.17					
SD	0	0					

Since the calculated  $X^2 = 11.86 > 5.99$  tabulated value at 5% level of significance at 3 degree of freedom (df), the null hypothesis ( $H_0$ ) is rejected and the alternate hypothesis is accepted.

## Discussion

The functional distribution of environmental health officers clearly showed that all the functions assessed recorded high mean score. The most identifiable function in the present study include inspection of premises, food and meat hygiene inspection and pollution control.

Meat inspection alone is quite an important task since meat is associated with several food-borne diseases likely to cause damage on human body (Ahmed and Shimamoto, 2014).

The role of EHOs on food hygiene is of obvious importance to combat food-borne diseases pieces such as Escherichia, Salmonella, Campylobacter, including the emerging potential food-borne pathogens (Institute of Medicine, 2012). Hence as identified in the present study, the duties of the EHOs are quite enormous.

The roles of the EHOs in Nigeria are clearly enumerated in EHORECON (2015) and each function required full practice in other to achieve the health for all initiative. Eddy, Stull and Blaster (2013) emphasized on the need to establishing a community-focused, integrated disease prevention strategy that cautions people about the risks associated with food, water, animal and contaminated environmental media, even before and during disease outbreaks. This is one of the roles of EHPs who have a major part to play in One Health initiatives.

There were poor competence and lack of reediness for Environmental Health Officers in the study area in relation to employment of EHOs, uplifting of the occupation by people, provision of training institutions, hazardous nature of the job, government policy and awareness, all indicating poor competence and readiness for environmental health officers in the study area. Possible reasons for this type of result include lack of knowledge on the role of EHOs, yet they are most used and assigned with huge task.

In Musoke, Ndejjo, Atusingwize, and Halage (2016), it was obviously reported that health education requires increasing awareness on several aspects such as pandemic preparedness, adaptation to climate change, animal control and vaccination requirements, transportation and land use planning affecting public wellness, water quality protection, waste management, energy choices, food safety and systems, and ecological protection and restoration. Another reason could be traceable to poor financing of environmental health activities, as well as negligence attached to their roles including reluctance towards allowing the EHOs to assume executive duties. This could be as a result of poor communication on EHOs' roles. Facilitating communication among increasingly specialized experts improves health outcomes for communities (National League of Cities, 2011).

The consequences resulting from poor utilization of environmental health officers in this study include: filthy environment, disease outbreak, poor hygiene practices, food contamination, flooding, uncontrolled development, high death rate and deforestation. The speed at which infections can spread globally and transition into deadly pandemics means that surveillance must be able to monitor infections and identify unknown threats emanating from different sources (Dixon, Dar and Heymann, 2014).

## **Conclusion**

Apparently, environmental health officers promote One Health initiative through their invaluable role in the prevention and control of diseases associated with food safety, meat safety, vectors and vermin, environmental pollution, and water, sanitation and hygiene which relate to One Health. Hence, environmental health practitioners should be involved as stakeholders in local, national and global health stages to contribute towards protecting animal and human health, and the environment. This can be achieved through ensuring that environmental health practitioners are part of planning, implementation, management and advisory processes of health activities at all levels locally and globally.

In conclusion, it is obvious that the current spatial and functional distribution of environmental health officers in Benue State, Nigeria, cannot make any significant impact in the improvement of environmental health and sanitation in the state unless they are properly embraced.

## **Recommendations**

The researcher has computed his results and come out with the following recommendations; he emphasized on the need to establish a viable training institution to train environmental health professionals. The need to embark on massive employment by the employers has also been stressed as this will replace the dead and the retired personnel.

Environmental health officers have so many functions to perform, unfortunately the number on ground cannot handle the numerous duties as it much needs to be done about training and employment.

The outcome of this research work shows that in the near future there will be no environmental health officers in the study area. This is evident in table 2, as the officers above 50 years are so many and the retirement age of 60 years is eminent.

The researcher has established that going by the available results as presented by the respondents, government has to hasten action to train and employ professionals who will attack the environmental health challenges already being faced by the area.

The entire number of environmental health professionals in the state is not even commensurate to what is being advocated by the World Health Organization for one local government area. A critical study of table 1 will show you the negligible number of both the males and the female professionals. This calls for sensitization of the people about the field of environmental health.

Table 3 of the study explains the low educational attainment of the few young professionals on the field. This calls for in-service training as this will also enhance performance. Local government councils should be made to know their roles in environmental health and sanitation. The Environmental Health Department in the LGAs should be strengthened with equipment, training and employment, considering the importance of the roles played by sanitarians.

World Health Organization (WHO) specifies at least 50 Environmental Health Officers per local government. Benue state has not yet started the practice of environmental health. More needs to be done to meet the World Health Standard. Hence Benue State needs to increase in number of Environmental Health Officers in the service of the various tiers of government to meet up with the minimum requirement of 1 EHO to 8000 population stipulated by the World Health Organization.

Environmental health personnel should be encouraged so as to attract youth to read the course.

Government should make policies that will ensure sustenance of environmental health practice both at the state and local government levels. Such policies should be strictly implemented. Both the state and local government councils should ensure enforcement of sanitation laws. This will make the people to imbibe the culture of maintaining a clean and healthy environment.

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