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Awareness of Air Pollution Issues among Public Primary School Teachers in Enugu North Senatorial District, Enugu State, Nigeria

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Abstract

The study examined awareness of air pollution issues among primary school teachers in Enugu North Senatorial District, Enugu State, Nigeria. Specifically, it determined the teachers' awareness of: causes; dangers; and preventive measures of air pollution. Three hypotheses were tested by the study at 0.05 level of significance. Survey design was used for the study. Population consisted of all teachers (9,735) in the area of the study. A multi-stage sampling technique was used to draw a sample 372 teachers. Questionnaire was used for data collection. Data were analyzed using frequency, percentages, and Chi-square (x^2) at 0.05 level of significance. Major findings include, overall, the awareness of causes of air pollution was moderate (71.7%), overall awareness of the dangers of air pollution was poor (49.1%) and overall awareness of the preventive measures of air pollution was moderate (73.7%). Findings on hypotheses show that the levels of awareness of: causes; dangers; and preventive measures of air pollution did not significantly depend on age, gender and level of education of the public primary school teachers, at the 0.05 level of significance.

Keywords: Awareness, Air Pollution, Causes, Dangers, Preventive Measures, Primary School, Teachers.

Introduction

Air pollution is a prominent environmental and public health concern in developed and developing countries. Air pollution can be referred to as the presence of toxic substances harmful to human health in the air. Such substances are associated with some diseases. Globally, air pollution causes significant morbidity and contributes to nine million deaths annually (Fuller et al., 2022). In sub-Sahara Africa, exposure to air pollution is linked to diseases such as asthma, heart disease, hypertension, chronic obstructive pulmonary disease and lung disease (Awokola *et al.,* 2020). Air pollution is the third leading risk factor for premature death in Nigeria (Health Effects Institute (2020). Ejikeme et al., (2023) and Onyeka et al., (2020) noted that levels of air pollutants in Enugu and Nsukka were above the recommended permissible limits which may present public health risks. Air pollution is the contamination of the outdoor and indoor environment by the hazardous

substances whether physical, chemical or biological agents, altering natural state of the atmosphere (World Health Organization, 2022). Indoor air pollution is also referred as household air pollution while ambient air pollution is also referred to as outdoor air pollution. Indoor or household air pollution refers to pollutants in a confined space that harm the human body (Tran et al., 2020). The sources of indoor air pollution can be attributed to natural and human activities. Both the natural and human activities such as incomplete combustion of solid fuels, use of kerosene stoves, saw dusts, fire woods could result in emission of smoke, gases and dirt that pollution air inside the buildings. Also, ambient air pollutants can penetrate through the ill-fitted or open doors and windows to contaminate air inside the buildings. Indoor air pollution is found to be associated with an array of communicable and non-communicable diseases like asthma, acute respiratory infection, chronic obstructive pulmonary disease, ischaemic heart disease, low birth weight and stillbirth with the respiratory system taking the maximum brunt (Aneriberg et al., 2020, Lee et al., 2020 & Abusin 2022). Household air pollution was responsible for an estimated 3.2 million deaths per year in 2020, including over 237,000 deaths of children under age five globally (World health Organization-WHO, 2023**).** Ambient air pollution is as serious as indoor air pollution affecting the developed and developing countries.

Outdoor air pollution is estimated to have caused 4.2 million premature deaths worldwide in 2019, and some 89 percent of those premature deaths occur in low and middle income countries (WHO, 2022). The world primary air pollutants include particulate matter, carbon monoxide, ozone, nitrogen dioxide, Sulphur dioxide, hydrogen sulfide, ammonia, volatile organic compounds and potentially toxic metals (Ugonabo et al., 2023, Richard et al., 2023). Exposure to these pollutants causes serious health problems. Previous studies have established associations between air pollution and chronic respiratory diseases, cardiovascular conditions, neurological disorders, and complications during pregnancy and childbirth (Orellano et al., 2020 & Arias-Perez et al., 2020). This might be that air pollutants are volatile and can be inhaled unknowingly. Air pollutants released into the air either through household or ambient, can be inhaled through the nostrils, penetrate the lungs and absorbed in the bloodstream causing various health problems and premature deaths, and need to be prevented.

Air pollution is a serious health issue with adverse effects on health and needs to be investigated. The inhabitants of this area may be engaging in some practices such use of fire woods, saw dust, kerosene lamps and stoves, generators for domestic and commercial purposes, smoking of cigarettes, burning bushes and refuse dumps, use of agrochemicals for agricultural purposes and irregular emptying of the refuse dumps by the

environmental health authority. Also, there are many roads (express and local) being plied by heavy vehicles (tankers, trailers, tractors, tippers), and other automobiles capable of emitting dangerous gases into the atmosphere polluting the air. These activities are capable of emitting gases into the atmosphere causing air pollution. Primary school teachers can educate and enlighten the primary school pupils, community leaders and general public to raise awareness on the issues of air pollution. They can as well influence the community leaders (Igwes), town union leaders and environmental health authority and other stakeholders to devise and implement programmes to control air pollution. Educational curriculum of the teachers may not have included air pollution during their course of training, thus the teachers may not have acquired the knowledge to create awareness on the issues of air pollution for the pupils and general public. Studies (Alrabadi et el., 2024 & Das, 2023) have been conducted on awareness of air pollution. However, none of such study was conducted to determine the awareness of air pollution issues among the public primary school teachers in Enugu-North Senatorial District, Enugu State. Thus, the need for the present study.

Purpose of the Study

The study focused on awareness of air pollution issues among primary school teachers in Enugu North Senatorial District, Enugu State. Specifically, the study determined the awareness of the following air pollution issues among the public primary school teachers:

(1) causes of air pollution,
(2) dangers of air pollution,
(3) preventive measures for air pollution.

Hypotheses (HOs)

The Primary school teachers' awareness levels of the following, are independent of their ag, gender, and level of education:

HO_1: causes of air pollution.
HO_2: dangers of air pollution.
HO_3: preventive measures of air pollution.

Methodology

Design of the study: This study adopted a descriptive cross-sectional research design.

***Area of the study*:** The study was conducted in Enugu North Senatorial District, Enugu State. The senatorial district has two education zones (Nsukka and Obollo-afor). The inhabitants engage in some commercial practices which emit particles capable of causing air pollution. These particles are emitted from vehicles exhaust pipes, residential fuel use, agricultural and industrial activities, refuse and bush burning and road construction works.

***Population for the study*:** The population comprised of all the public primary school teachers in Enugu North Senatorial District, Enugu State. There were 425 primary schools in the area and 9,735 teachers, made up of 7,340 females and 2,395 males at the time of study (Post Primary School Management Board-

PPSMB, 2022/2023). The teachers were aged between 25 to 65years and had NCE, HND, B.Ed/B.Sc. and M.Ed/Ph.D for their educational qualifications. The pollution scenario in the area necessitate that the primary school teachers become aware of air pollution issues so that they can inform their pupils.

***Sample for the study*:** Multi-stage sampling procedure was used to select 372 primary school teachers for the study. The first stage involved purposive selection of onr out of the two education zones in the area (Nsukka education zone). The zone comprised of three Local Government Areas, (LGAs) which are Igbo-Etiti, Nsukka and Uzo-Uwani with 16, 30 and 15 primary schools respectively. Stage two involved use of proportionate sampling technique to select 15 public primary schools from Nsukka LGA, and eight each from Igbo-Etiti and Uzo-Uwani LGAs in the Nsukka education zone (a total of 31 public primary schools). Stage three is the use of convenience sampling procedure to draw 12 teachers from each public primary school giving a total of 372 primary school teachers used for the study. This consisted of 240 females and 132 males.

***Instrument for Data Collection*:** Instrument for data collection was questionnaire. It was developed based on the purposes of the study and extensive literature review (Alrabadi et el., 2024, Das, 2023, & Krisha et al., 2021). The instrument had response options of "Yes or No". The instrument was validated by three university experts in Human Kinetics and Health Education. Twenty copies of the instrument were administered to 20 public primary school teachers outside the area of the study. Data collected was used to establish the reliability index of the instrument using Spearman Brown correlation coefficient. A reliable index of .76 was obtained.

***Method of Data Collection*:** A total of 372 copies of the questionnaire were administered to respondents by researchers with the help of one trained research assistant from each school. Out of the 372 copies administered, only 329 (114 males and 215 females) were properly completed giving a return rate of 88.4 percent and were used for data analysis.

***Method of Data Analysis*:** Data were analyzed using frequencies, percentages and Chi-square at 0.05 level of significance. Percentage scores below 50 percent were interpreted as poor awareness; 50-79 percent as moderate/average awareness; 80 percent and above as good awareness

Findings of the study

Table 1: Frequency and Percentage Responses of Primary School Teachers on Awareness of the Causes of Air Pollution

S/N	Air Pollution Awareness (causes) indicators	Yes f(%)	No f(%)
1.	Use of generators for domestic and commercial purposes cause air pollution.	247(75.1)	82(24.9)
2.	Fumes emitted from moving vehicles cause air pollution.	250(76.0)	79(24.0)
3.	Cooking with fire woods and saw dust cause air pollution.	217(66.0)	112(34.0)
4.	Burning of bushes and refuse contribute to air pollution.	246(74.8)	83(25.2)
5.	Agricultural activities such spraying of agrochemicals cause air pollution.	231(70.2)	98(29.8)
6.	Use of kerosene lanterns and stoves.	230(69.9)	99(30.1)
7.	Irregular emptying of refuse dumps.	241(73.3)	88(26.7)
8.	Road construction works.	238(72.3)	91(27.7)
9.	Smokes from cigarette smoking cause air pollution.	225(68.4)	104(31.6)
10.	Wind-blown mineral dust.	244(68.1)	105(31.9)
	Overall knowledge %	(71.4)	(28.6)

Below 50% = Poor awareness, 50-79% =Average/moderate awareness, 80% and above = good awareness (n=329).

Table 1 shows that overall, awareness of causes of air pollution among primary school teachers was moderate (71.4%). Table 1 also shows that awareness on all the items on causes of air pollution among primary school teachers was moderate (scores above 50%).

Table 2: Frequency and Percentage Responses of the Primary School Teachers on Awareness of the Dangers of Air Pollution.

S/N	Air Pollution Awareness (dangers) indicators	Yes f(%)	No f(%)
1.	Exposure to air pollutants increase the risk of lower respiratory tract disease.	209(63.5)	120(36.4)
2.	Exposure to air pollutants exacerbates the risk of cardiovascular diseases.	151(45.8)	178(36.4)
3.	Contact of the skin with air pollutants increase the risk of inflammatory skin diseases.	207(62.9)	122(37.0)
4	Absorption of air pollutants into skin increases the risk of cancer.	103(31.3)	226(68.7)
5.	Inhalation of air pollutants increases the risk chronic obstructive pulmonary disease (asthma).	211(64.1)	118(35.8)
6.	Inhalation of air pollutants increases in pregnancy increase the risk of preterm delivery.	114(34.6)	215(65.3)
7.	Exposure to air pollution increases the risk of premature death of children less than five years.	109(33.1)	220(66.9)
8.	Exposure to air pollution increases the risk neurological disease such as anxiety, headache.	205(62.3)	124(37.7)

Table 2 Continued

9.	Air pollution affects cognitive ability.	201(61.0)	128(38.9)
10.	Exposure to air pollution increase the risk of acute respiratory infections in children.	107(32.5)	222(67.5)
	Overall%	49.1	50.8

Below 50% = poor awareness, 50-79% =Average/moderate awareness, 80% and above = good awareness.

Table 2 shows that in overall, awareness of danger of air pollution among primary school teachers was poor (49.1%). Table 2 also indicates that primary school teachers had moderate awareness that air pollution increases the risk of lower respiratory disease (63.5%), risk of inflammatory skin diseases (62.9%), chronic obstructive pulmonary diseases (64.1%), anxiety and headache (62.3%) and affecting cognitive ability (61.0%).

Table 3: Frequency and Percentage Responses of Primary School Teachers on Awareness of Air Pollution Preventive Measures.

S/N	Air Pollution Awareness (preventive measures) indicators	Yes f (%)	No f (%)
1.	Avoiding wildfires (bush burning) can prevent air pollution.	253(76.9)	76(23.1)
2.	Reducing the use of generators in the homes and industries.	240(72.9)	89(27.1)
3.	Regular emptying of dumped refuse before decaying can prevent air pollution.	238(72.3)	91(27.6)
4.	Using less smoky solid fuel for cooking such as gas	234(71.1)	95(28.9)
5.	Use of transportation with less fossil fuels like train, bicycle can help reduce air pollution.	249(75.5)	80(24.3)
6.	Avoiding burning of refuse dumps can prevent air pollution.	248(75.3)	81(24.6)
7.	Installing solar energy as source of light in the homes and industries.	235(74.4)	95(28.8)
8.	Banning/restriction of cigarette smoking in public places.	239(72.6)	90(27.3)
9.	Planting of different plant species help in removal of air pollutants.	240(72.9)	89(27.1)
10.	Use of personal protective equipment reduces the inhalation/ direct contact of air pollutants.	249(75.6)	80(24.3)

Below 50%= poor awareness, 50-79% =Average/moderate awareness, 80% and above = good awareness (n = 329)

Table 3 indicates that overall, awareness of preventive measures of air pollution among primary school teachers was moderate (73.7%). Table 3 also shows that awareness of preventive measures of air pollution among primary school teachers was moderate on all the items (scores above 50%).

Table 4: Chi-Square Analysis on Awareness of Causes of Air Pollution and Socio-demographic Variables (Age, Gender & Level of Education) of Primary Schhol Teachers.

Variables	N	Level Poor O(E)	Of Moderate O(E)	Knowledge Good O(E)	x^2	Df	p-value	Decision
Age(years)								
25-34	99	18(14.4)	53(48.1)	28(36.7)				
35-44	129	17(18.4)	59(62.7)	53(47.8)	6.254	3	.395	Not significant
45-54	80	10(11.4)	36(38.9)	34(29.7)				
55-65	21	2(3.0)	12(10.0)	7(7.8)				
Gender								
Male	114	22(16.3)	54(55.4)	38(42.3)	3.787	1	.151	Not significant
Female	215	25(30.7)	106(104.6)	84(79.7)				
Level of education								
NCE	41	7(5.9)	20(19.9)	14(15.2)				
HND	57	8(8.1)	32(27.7)	17(21.1)	3.398	3	.758	Not significant
B.Sc.	156	23(22.3)	75(75.9)	58(57.8)				
Masters/Ph.D.	75	9(10.0)	33(36.9)	33(27.8)				

Key: p-value >.05 = not significant, <.05 = significant; Df = Degree of Freedom.

Table 4 shows that there is no significant difference in the level of awareness of air pollution and age (x^2=6.254, p = .395), gender (x^2= 3.787, p =.151) and level of education (x^2 =3.398, p = .758) among primary school teachers in Enugu State.

Table 5: Chi-Square Analysis on Awareness of Dangers of Air Pollution and Socio-Demographic Variables (Age, Gender & Level of Education) of Primary School Teachers.

Variables	N	Level Poor O(E)	of Moderate O(E)	Awareness High O(E)	x^2	Df	p-value	Decision
Age(years)								
25-34	99	53(53.5)	32(32.3)	14(13.2)				
35-44	129	45(45.0)	61(61.2)	23(22.8)	6.589	3	.159	Not significant
45-54	80	42(41.3)	17(15.7)	21(23.0)				
55-60	21	4(5.6)	13(10.1)	4(5.3)				
Gender								
Male	114	22(16.3)	55(56.4)	37(41.3)	1.535	1	.153	Not significant

Table 5 Continued

Female	215	28(30.3)	109(107.1)	78(77.6)				
Level of education								
NCE	41	8(6.9)	14(14.2)	19(19.9)				
HND	57	12(8.5)	25(30.1)	20(18.4)	5.375	3	.351	Not significant
B.Sc.	156	15(22.0)	92(83.0)	48(51.0)				
Masters/Ph.D.	75	11(9.0)	34(37.7)	30(28.3)				

Key: p-value >.05 = not significant, <.05 = significant; Df = Degree of Freedom

Table 5 shows that there was no significant difference in the level of awareness of dangers of air pollution and age (x^2=6.589, p =.159), gender (x^2 = 1.535, p =.153), level of education (x^2 =5.375, p = .351) among primary school teachers in Enugu State.

Table 6: Chi-Square Analysis on Awareness of Preventive Measures of Air Pollution and Socio-Demographic Variables (Age, Gender & Level of Education) of Primary School Teachers.

Variables	**N**	**Level Poor O(E)**	**Of Moderate O(E)**	**Knowledge Good O(E)**	x^2	**Df**	**P-value**	**Decision**
Age(years)								
25-34	99	12(13.2)	57(53.6)	30(32.2)				
35-44	129	17(17.3)	63(69.8)	49(42.0)	5.558	3	.474	Not significant
45-54	80	13(10.7)	43(43.3)	24(26.0)				
55-65	21	2(2.8)	15(11.4)	4(6.8)				
Gender								
Male	114	17(15.2)	65(61.7)	32(37.1)	1.646	1	.439	Not significant
Female	215	27(28.8)	113(116.3)	75(69.9)				
Level of education								
NCE	41	7(5.5)	20(22.2)	14(13.3)				
HND	57	11(7.6)	26(30.8)	20(18.5)	6.685	3	.351	Not significant
B.Sc.	156	14(20.9)	93(84.4)	49(50.7)				
Masters/Ph.D.	75	12(10.0)	39(40.6)	24(24.4)				

Key: p-value >.05 = not significant, <.05 = significant; Df = Degree of Freedom

Table 6 shows that there was no significant difference in the level of awareness of preventive measures of air pollution and age (x^2=5.558, p = .474), gender (x^2 = 1.646, p =.439), level of education (x^2 =6.685, p = .351) among public primary school teachers in Enugu State.

Discussion

Air pollution has serious health impacts on human beings globally causing premature deaths. Hence, this study was undertaken to determine the awareness of air pollution issues among public primary school teachers in Enugu North Senatorial District. Table 1 showed that (71.4%) of primary school teachers were aware of causes of air pollution. The teachers may have been taught the causes of air pollution during their course of study as students or got the information through internet sources, radio/television broadcasts or printed medias. This is inconsistent with the study conducted by Das (2023) which reported that all the respondents (100%) were aware of the causes of air pollution. Nwanakwere and Oyeokun (2020) noted that all the respondents were fully aware of the causes of air pollution. The difference might be attributed that the respondents of the reviewed study are still in school, and information on causes of air pollution are still fresh in their memories. The result of the study indicated that 75.1% and 70.2% recognized use of generators and agricultural activities as sources or causes of air pollution. This result corroborates with the findings of Rendon-Marin et al., (2024) and Oluoha et al., (2023) which reported that respondents recognized that extensive livestock farming and use of generators (87%, 73.5%) constitute major sources of air pollution. The similarities in the awareness of causes of air pollution may be linked that sources of air pollution are always clear, polluting the environment with fumes, smokes and offensive smells. The result of the study also reported that (74.8% & 66.0%) of the respondents identified burning bushes and use of fire woods and kerosene stoves as causes of air pollution. This at variance with the findings of Oluoha et al. (2023) which reported that low percentage (19.6% & 23.8%) of the respondents indicated that burning of bushes and use of firewood or charcoal could contribute to air pollution. The findings also revealed that primary school teachers identified fumes from moving vehicles (76.0%), irregular emptying of refuse dumps (73.3%) and smokes from cigarette (68.4%) as causes of air pollution. The results also disagree with the findings of Ngobeni and Kekana (2024) which reported that low percentage (40%, 32% & 26%) indicated that motor vehicles, poor waste collection and cigarette smoke were causes of air pollution. The differences might be attributed to the educational qualifications of the respondents as the present study was conducted among primary school teachers who literates compared with the Ngobeni and Kekana study which was conducted among local municipality that included both literates and non-literates.

Table 2 showed that the awareness of dangers of air pollution among primary school teachers was poor (49.1%). This is serious as teachers are expected acquire the requisite knowledge about the dangers of air pollution to teach the pupils as well as the communities and general public the seriousness of air pollution. The result of study disagrees

with findings of Ngobeni and Kekana (2024) which indicated that (90.0%) were aware of the impacts of air pollution. The difference may be linked to the method of data analysis and area of study. Table 2 also showed that respondents identified respiratory diseases (69.9%), cardiovascular diseases (73.3%), skin inflammation, irritation and cancer (72.3%), pregnancy complications (68.4%) and neurological symptoms (68.1%) as dangers of air pollution. This result is at congruence with study done by Krisha et al., (2021) in which the respondents reported that air pollution causes lower respiratory diseases (63.21%), cardiovascular disease (71.70%), premature birth (50.94%) and cognitive ability (73.58%). The similarities may be linked to the fact that people from different regions of the world are experiencing similar health problems due to exposure to air pollution. Another likely reason for similarity might be that both studies were conducted among adults. The result is in contrast with the findings of Rendom-Marin et al. (2024) which reported that high percentage (90.0%) of the medical students indicated that exposure to air pollution increases the risk of complications in pregnancy and the fetus, inflammatory skin diseases, neurological diseases, cardiovascular diseases, and respiratory diseases.

Table 3 shows that the awareness of preventive measures or air pollution among primary school teachers was moderate (73.7%). This could be that air pollution has serious negative impacts on health and everybody including teachers are scared of the health problems caused by air pollution. This result concurs with the findings of Siddique et al., (2024) which reported that the overall correct preventive practices among the respondents was (57.5%). The result of the study indicated that the use of transportation with less fossil fuels like trains (75.5%) can help to reduce air pollution which contradicts with the findings of Rendon-Marin et al., (2024) which reported that only (33.2%) of the participants indicated that using transportation means that do not rely on fossil fuels can help reduce air pollution. The finding contradicts with the result of study which reported that using less smoky solid fuel (25%) is one of the air pollution prevention (Quintyne & Kelly, 2023). The similarities and differences may be attributed to area of the studies and educational qualifications of the respondents.

Table 4 shows that there is no significant difference in the level of awareness of causes of air pollution and age (x^2=6.254, p = .395), gender (x^2= 3.787, p =.151) and level of education (x^2 =3.398, p = .758) among public primary school teachers in Enugu State. This might be linked that the respondents are all adults who are not conscious of their environment to observe air pollution and its' causes. The finding is at variance with the results of studies done by (Araune et al., 2024, Odonkor & Mahami 2020) which reported that age, gender and education ($p<.05$) were significantly associated with awareness of causes of air pollution. Their results imply that older respondents,

females and those with higher educational grade or qualifications had good awareness of causes of air pollution than their counterparts.

Table 5 shows that there was no significant difference in the level of awareness of dangers of air pollution and age (x^2=5.157, p =.127), gender (x^2 = 1.535, p =.153), level of education (x^2 =5.375, p = .351) among primary school teachers in Enugu State. The reason for this result might be that the respondents irrespective of their age, gender or level of education were unable to recognize that air pollution contributes to a range of diseases such as heart diseases, cardiovascular and respiratory diseases, cancer, pregnancy complications, neurological problems and even premature deaths. Also, the respondents may be attributing the health problems to other causes such infection, poison or even witchcraft. This result agrees with Milibari et al., (2025) and Mor et al., (2022) which reported that age, gender and education are not significantly associated with impacts or health risks of air pollution. The result contradicts with the findings of (Quintyne and Kelly 2023 & Krisha et al., 2021) which reported that gender was statistically significant with the awareness of air pollution and impacts on health. The reason might be that women are more concerned about their environment, health and health of the family members.

Table 6 indicates that there was no significant difference in the awareness of air preventive measures and age (x^2=5.558, p = .474), gender (x^2 = 1.646, p =.439) and level of education (x^2 =6.685, p = .351) among public primary school teachers. This might be attributed to the fact that they are all teachers with equal exposure to air pollution and may not have intent interest to air pollution prevention regardless of their age, gender, level of education. The result is consistent with the findings of Hashem et al. (2024) which indicated that age and level of education are not significantly associated (p>.05) with the preventive practices or air pollution. The result disagrees with the findings of (Girsha et al., 2024, Al-Shidi et al., 2021, and Odonkor & Mahami 2020) which reported that educational level, gender and age were significantly associated (p< .05) with air pollution prevention. The differences and similarities might be attributed to differences in the area of the studies, instrument for data collection and educational qualifications of the respondents.

Conclusion

The study revealed that primary school teachers had moderate awareness of causes and preventive measures of air pollution but had poor awareness of the dangers of air pollution. Also, the result indicated that there was no significant difference in the level of awareness of causes, dangers and preventive measures of air pollution based on age, gender and level of education.

Recommendations

Based on the findings the following recommendations were made:

1. Appropriate authorities should organize sensitization campaigns, targeted education campaigns, monitoring, and policy interventions through mass media, community leaders and other stakeholders to raise awareness on issues of air pollution among the primary school teachers and the public.
2. Government and educational authority should include environmental education in the school curriculum at all level of education.
3. The environmental protection agency and other stakeholders should enlighten teachers and the general public on ways to protect the environment to prevent air pollution and its adverse effects.

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