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EMERGING CONSEQUENCES OF CLIMATE CHANGE ON ACADEMIC PERFORMANCE OF AGRICULTURAL SCIENCE STUDENTS IN SENIOR SECONDARY SCHOOLS IN ABIA STATE

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Abstract

The study centered on determining emerging consequences of climate change on academic performance of agricultural science students in secondary schools in Abia state, three research questions and three null hypotheses guided the study using a descriptive survey. The population of study was 10,045 agricultural science students in senior secondary schools, Umuahia Educational zone, Abia state, while the sample size used was 210 Agricultural science students gotten using Taro yamane method of estimating sample size. Instrument for data collection was a self structured questionnaire, tittled Climate Change and Academic performance Questionnaire
(CCAPQ) and duly validated and the reliability of the instrument was established using Cronbach alpha, which yielded a co-efficient index of 0.81. Mean and standard deviations was used to answer the research questions while t-test was used to test the hypotheses at 0.05 level of significance. The results identified extreme weather events such as floods and droughts as climate issues affecting students, increase in temperature and frequent flood increase, leading to poor performance in school and developing projects by government, that will aim at helping students better respond to the threats posed by climate change as an approaches in managing the adverse consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state. However, It was recommended among others that government should developed a comprehensive education and outreach programmes for schools teachers, which can be enhanced through conferences and seminars to train teachers on issues of climate change and the danger it poses to human development. Such conferences should be centered on mitigation and adaptation measures to address the challenges of climate change.

Keywords
Climate change, agricultural science, students, performance, secondary school

Introduction

Agricultural science is one of the important science subjects offered in primary and secondary schools in Nigeria; with the aim of training the primary and students in the knowledge and practice of Agriculture for self-reliance in food production and for the overall economic growth of any nation. In the views of Oberle and Keeney (2009), Agricultural science entails a complex and multidisciplinary field that represents an

interconnection between human and natural environments. Operationally, Agricultural science refers to science and art of plant and animal production to uplift the standard of living of human kind. It is a subject that is well-instituted in the Nigerian educational system some decades ago due to its vital roles targeted at addressing the challenges of short supply of food and natural resources needed for human consumption and economic advancement of Nigeria due to inadequate trained personnel in Agricultural Science (Olamie, 2012). In the words of Wright (2012), the major goal of Agricultural education is to prepare youths and adults for different career paths in Agriculture. Prior to the discovery of oil/gas in Oloibiri, Bayelsa state in South-South, Nigeria in 1956, agriculture has been the mainstay of the nations' foreign earnings and Gross Domestic Product (GDP). The Nigerian agricultural sector shoulders the responsibility of provision of food for the population and it is the largest employer of labour with more than 75% of the nation's population involving in one form of agriculture-related activities or another (Adenike, 2012). Similarly, of the estimated 3.14 million hectares irrigable land area, only about 220,000 ha (7%) is utilized (World Bank, 2011). Thus, According to the Federal Ministry of Education (2014), agricultural science has a very long history in Nigeria and directed towards the development of the Nigeria nation' economy.

However, despite the great importance of agriculture and that agricultural science is a subject offered in secondary schools in Abia state and Nigeria at large; as featured in the Nigerian educational curriculum, the academic performance of students in the subject has been observed to be below societal expectations. According to Ekezie and Owo (2019), the performances of Agricultural science students in Nigerian secondary schools today are observed to be extremely very poor in terms of practical skills acquisitions. Ekezie and Owo stressed further that this trend is evident in the students' nonchalant and lackadaisical attitudes towards the practice of agriculture and other agro-based occupations. A research by Dunn and Dunn cited in (2016) indicated severe cold or hot room temperatures affect pupils' learning because the brain will be constantly reminding the body to respond appropriately until the required temperature is achieved; these reminders are likely to affect learning and learning outcomes. Operationally, Secondary school students of this present days do not show any atom of interest in Agricultural science.

Although, no doubts several factors may be responsible for the students' poor achievement in Agricultural science, one of such factors have been found to be climate change factor (Sommers and Eleanor, 2014). Climate change is one of the most important environmental issues facing the entire world today. This is evidenced by the spate of conferences, campaigns, reports and researches on climate change in the last 20 years (Agenda 21 of Rio declaration, 1992, Intergovernmental Panel on Climate Change (IPCC, 2014) to mention a few. Presently, there is widespread consensus in the scientific community and even among educationist and politicians that climate change is happening and the impacts are already with us.

Climate change is often used to describe any kind of change in climate that may be natural or human- induced (Union of Concerned Scientist UCS, 2012). It is seen as, according to Ekpoh (2009); an abnormal variation in the earth's climate that usually occurs over durations ranging from decades to millions of years. Evidence shows that global mean temperature increased by 0.60C during the 20th century, with the hottest years occurring between 1997 and 2007 (IPCC, 2014). This warming of the world's climate has been linked to higher concentrations of carbon dioxide and other greenhouse gases (GHGs) in the atmosphere, which are dominantly of anthropogenic origin such as fossil fuel combustion, land use and deforestation. Climate change phenomenon has serious deleterious consequences for the earth in the form of significant variations in regional climates, recurrent droughts, excessive heat waves, windstorms, diminishing water resources and killer floods, causing increased malnutrition, waterborne diseases such as diarrhoea, and vector-borne diseases such as malaria. Floods and rising sea levels can cause drowning, injuries, and severe mental and physical trauma, particularly for communities living in Small Island developing states, settlements alongside major river deltas and low-lying coastal areas. Evidence suggests that developing countries, already struggling with social, economic and environmental issues, will suffer most from greater weather extremes and the increasing

incidence of droughts and floods(Spore, 2008). Nigeria is a developing nation and large part of its economy depends on natural resources which are vulnerable to climate change; in view of this, Nigeria is sensitive to the effects of climate change. When those resources are affected, communities are affected. Loss of livelihoods, settlements and diseases, can force entire communities into complete extinction or refugee status. Climate change interferes with almost all aspects of life including schooling.

In line with the above assertions, many students are absent from school during heavy rains, especially in the villages where there are no means of transportation. Such absenteeism obviously affects students' academic performance. In some places, the students are kept at home doing domestic chores, depriving them of their individual schooling. If there is drought, it is mainly the students learners that are responsible for collecting water a burden which may also prevent them from either attending school or taking their school attendance seriously. Serious drought leads to food scarcity, which leads to hunger, which in turn affects the ability of learning of the students (World Bank, 2011). Students often have to move with their families to places where there is safety from flooding, which also affects their education adversely by interrupting their studies and potentially increasing their distance from the available schools. More so, in some part of the country like the same Rivers state; for example, two primary schools were closed for weeks in order to provide settlements for flood victims. Such closure also impacts their capacity to study at school and home (IPPMedia, 2011). At this stage whether male or female, the pattern of climate change effects on academic performance is on both genders because they lack knowledge and skill to adequately manage the adverse situation.

Gender is seen as the socially constructed roles, behaviour, activities and attributes that a particular society considers for men and women. To Woolfolk (2010) gender usually refers to traits and behaviours that a particular culture judges to be appropriate for men and women. Cross and Madson (2016) stated that although the majority of the researcher shows that parent attachment is stronger in female, female may also be more likely than boys to draw support from other sources, such as peers, because female may be more active in the pursuit of relatedness in the context of their peer relations. Hay and Ashman (2013) concluded that females were more influenced by adverse situations than males. It has also been revealed that girls do not do well in schools than boy, because they can not handle adverse situations than their male conterparts (Aryana, 2010). From the on-going, adolescent boys and girls exhibit differences in behavioural patterns regarding happening situations in relationship to their academic performance. There is therefore urgent need for a better and exact understanding of the climate change and their effect on academic performance of students, especially agricultural science students. This then has necessitated the need to examine the emerging consequences of climate change on academic performance, using agricultural science students in senior secondary schools in Abia state.

Statement of the problem

Agriculture as a branch of science has attained a secured position in the curriculum of schools, colleges and universities as an essential part of general education for life (Hill, 2008). Agriculture practice in Abia state and Nigeria as a whole is important in enhancing food security in the nation and one way of doing this is by equipping the learners with knowledge and skills in agriculture that will enable them to function productively in agricultural production. However, this seems not to be the case of current events, because students' performances have not been encouraging (WAEC, 2018). There are several attempts through the use of carefully planned instructional strategies amid models to improve the status of agricultural teaching and learning of the teachers and learners respectively.

Despite all these efforts that have been made over the years to improve the quality of the teaching and learning of agricultural science in our schools, students' performance in the subjects has remained persistently poor at the Senior Secondary Certificate Examination. The poor performance could be attributed to the impact of Climate change since its impact interferes with almost all aspects of life, including the education of the child. However to date, there is very little empirical data on exact implications of climate change on academic

performance of agricultural science students in senior secondary schools in Abia state. Hence, the need to examine the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state.

Purpose of the Study

The purpose of the study was to examine the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state

Specifically, the study was designed to identify:

i. **climate change issues affecting** agricultural science students in senior secondary schools in Abia state
ii. **effects of climate change on academic performance of** agricultural science students in senior secondary schools in Abia state
iii. **approaches in managing the adverse effects** of climate change on **academic performance of** agricultural science students in senior secondary schools in Abia state

Research Questions

The following research questions were put forward to guide the study:

i. What are the climate change issues affecting agricultural science students in senior secondary schools in Abia state?
ii. What are the effects of climate change on academic performance of agricultural science students in senior secondary schools in Abia state?
iii. What are the approaches in managing the adverse effects of climate change on academic performance of agricultural science students in senior secondary schools in Abia state?

Hypotheses

The null hypothesis was tested at 0.05 level of significance.

HO_1: There is no significant difference between the mean responses of male and female students of agricultural science on the implications of climate change on academic performance of agricultural science students in senior secondary schools in Abia state

Methods

The study adopted descriptive survey research design and it was considered suitable because the opinion of a representative sample of respondents was sought using questionnaire and the finding was generalized on the entire population. The population of the study was 10,045 Agricultural science students in senior secondary schools in Umuahia Educational zone, Abia state, while the sample size used was 210 respondents. The sample size was determined using Taro Yamen's formula for estimating sample frame. The instrument for data collection was questionnaire titled: Climate Change and Academic performance Questionnaire**(CCAPQ)**. The questionnaire was developed from literature by the researchers and used for data collection. The instrument was a four point response scale of strongly agreed (SA), Agreed (A), Disagreed (D) and Strongly disagreed (SD) with corresponding values of 4, 3, 2, and 1 respectively. The instrument was face – validated by three experts: Two from Agricultural and Home Science Department and one from Measurement and Evaluation Department- all in Michael Okpara University of Agriculture, Umudike. Their corrections and suggestions were utilized to improve the initial copies of the questionnaire to produce the final copies. Cronbach Alpha reliability method was adopted to determine the internal consistency of the questionnaire items. A Cronbach Alpha coefficient of 0.81 was obtained and the collected data was analyzed using mean for research questions and t-test was used for the test of hypothesis. Any mean response of 2.50 and above was considered positive or required while any mean response below 2.50 was considered negative, more so the hypothesis will be tested at 0.05 level of significant.

Results

Research Question 1

What are the climate change issues affecting agricultural science students in senior secondary schools in Abia state?

Table 1.1: Mean and Standard Deviation on Climate Change Issues Affecting Agricultural Science Students in Senior Secondary Schools (N=210)

S/N	Climate Change Issues	x	SD	Remark
1	Increased in heat wave i n the home and school environment	3.31	.73	Agreed
2	Extreme weather events such as floods and droughts.	3.40	.64	Agreed
3	Intense tropical cyclones within the school environment	3.40	.64	Agreed
4	Heavy rainfall and Droughts which affects the sanitation of the students within the school environment	3.31	.73	Agreed
5	Health issues, caused by the harsh weather conditions around homes and school environment	3.26	.68	Agreed
6	Rising temperatures and desertification	3.26	.68	Agreed
7	Heavy precipitation, flooding and rising sea levels	3.24	.76	Agreed
8	Increased malnutrition, due to unfavorable climate	3.22	.75	Agreed
9	Feelings of distress, hypothesis and fear, among other emotional trauma, due harshness of the weather	3.22	.75	Agreed

SD = Standard Deviation of the respondents and x = Mean of the respondents

Data in Table 1.1 revealed that all the 9 items had their mean ratings ranging from 3.22 to 3.40 and were above the cut-off point of 2.50. This indicated that the respondents agreed that all the 9 items were the climate change issues affecting agricultural science students in senior secondary schools. The standard deviation of all the 9 items ranged from .64 to .76, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the climate change issues affecting **a**gricultural science students in senior secondary schools in Abia state**.**

Research Question 2

What are the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state?

Table 2.1: Mean and Standard Deviation on the Consequences of Climate Change on Academic Performance of Agricultural Science Students in Senior Secondary Schools (N=210)

S/N	Implications of Climate	$\bar{x}$	SD	Rmk
1.	Students are at risk of displacement and migration, due to increase in temperature and frequent flood increase, leading to poor performance in school	3.29	.76	Agreed
2.	Climate change alters the health status of students, including increased deaths, diseases and injuries, leading to poor performance in school	3.48	.57	Agreed
3.	Economic and educational facilities / material damages, due to flooding e.g school buildings, books etc	3.55	.50	Agreed
4.	Fluctuations in weather conditions causes poor access to ICT learning facilities in homes and schools,leading to poor performance in school	3.15	.68	Agreed
5.	Heavy rainfall and extreme weather conditions makes the teaching and learning environment unconducive.	3.19	.69	Agreed
6.	Heavy rainfall and extreme weather events causes increased in the spread of endemic water,vector borne diseases and other infectious diseases among students	3.15	.79	Agreed
7.	Increased temperature may create uncomfortable conditions for learning of agricultural science	3.14	.79	Agreed
8.	Students are at risk of dearth, due to increase in extreme weather events	3.14	.79	Agreed

SD = Standard Deviation of the respondents and $\bar{x}$ = Mean of the respondents

Data in Table 2.1 revealed that all the 8 items had their mean ratings ranging from 3.14 to 3.55 and were above the cut-off point of 2.50. This indicated that the respondents agreed on all the identified consequences of climate change on academic performance of agricultural science students in senior secondary schools. The standard deviation of all the 8 items ranged from .50 to .79, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state.

Research Question 3

What are the approaches in managing the adverse consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state?

Table 3.1: Mean and Standard Deviation on the Approaches in Managing the Adverse Consequences of Climate Change on Academic Performance of Agricultural Science Students in Senior Secondary Schools (N=210)

S/N	Approaches in Managing Adverse impact of Climate	$\bar{x}$	SD	Remark
1.	Putting in place core knowledge and information about climate change as part of compulsory education	3.31	.73	Agreed
2.	Developing projects by government, that will aim at helping students better respond to the threats posed by climate change	3.40	.64	Agreed
3.	Embarking on tree planting and other programmesin schools, to involve students in practical community -based responses to climate change	3.40	.64	Agreed
4.	Investing in building school structures that are adapted to expected changes in the climate, by government	3.31	.73	Agreed
5.	Increased support for public awareness and education on climate change risks and adaptation options	3.28	.70	Agreed
6.	Developing teaching and learning materials in the field of climate change for educational institutions, by ministry of education	3.26	.68	Agreed
7.	Infusing into existing curriculum of teacher education programmes both at the College of Education and University levels.	3.24	.76	Agreed
8.	Creating avenues of further t raining should be provided for students to expose them to climate change and other contemporary issues in environmental problems	3.22	.75	Agreed
9	Training students and teachers on climate change adaptation learning and teaching strategies and techniques in teaching agricultural science at secondary level of education	3.31	.73	Agreed

SD = Standard Deviation of the respondents and $\bar{x}$ = Mean of the respondents

Data in Table 3.1 revealed that all the 9 items had their mean ratings ranging from 3.22 to 3.40 and were above the cut-off point of 2.50. This indicated that the respondents agreed on the all identified approaches in managing the adverse consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state. The standard deviation of all the 9 items ranged from .64 to .76, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the identified approaches in managing the adverse consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state.

Test of Hypotheses

Hypothesis one

Ho_1: There is no significant difference between the mean responses of male and female students of agricultural science on the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state

Table 4: t-test analysis of mean difference between male and female students on the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state

Respondents	N	X	SD	Pvalue	Stand.Error	DF	t-cal	t-Crit	RMK
Male	122	3.32	0.76	0.05	0.09	202	0.92	1.96	Accepted
Female	88	2.65	0.82						

Result in table 4 revealed that t-cal (0.92) is lesser than t-crit (1.96) which indicates that the hypothesis stated is accepted. With the forgoing, we therefore accept the null hypothesis for the items and reject the alternate hypothesis. Which means there is no significant difference between the mean responses of male and female students of agricultural science on the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state.

Findings of the study

The following findings emerged from the study:

A. Nine (9) climate change issues affecting agricultural science students in senior secondary schools in Abia state, were identified. They are;

- Increased in heat wave in the home and school environment
- Extreme weather events such as floods and droughts.
- Intense tropical cyclones within the school environment
- Heavy rainfall and Droughts which affects the sanitation of the students within the school environment
- Health issues, caused by the harsh weather conditions around homes and school environment
- Rising temperatures and desertification
- Heavy precipitation, flooding and rising sea levels
- Increased malnutrition, due to unfavorable climate
- Feelings of distress, hypothesis and fear, among
- other emotional trauma, due harshness of the weather

B. Nine(9) **consequences of climate change on academic performance of** agricultural science students in senior secondary schools in Abia state**, were identified. They are;**

- Students are at risk of displacement and migration, due to increase in temperature and frequent flood increase, leading to poor performance in school
- Climate change alters the health status of students, including increased deaths, diseases and injuries, leading to poor performance in school
- Economic and educational facilities / material damages, due to flooding e.g school buildings, books etc
- Fluctuations in weather conditions causes poor access to ICT learning facilities in homes and schools, leading to poor performance in school
- Heavy rainfall and extreme weather conditions makes the teaching and learning environment unconducive.
- Heavy rai nfall and extreme weather events causes increased in the spread of endemic water, vector borne diseases and other infectious diseases among students
- Increased temperature may create uncomfortable conditions for learning of agricultural science
- Students are at risk of dearth, due to increase in extreme weather events

However, there was no significant difference between the mean responses of male and female students of agricultural science on the implications of climate change on academic performance of agricultural science students in senior secondary schools in Abia state

C. Nine(9) approaches in managing the adverse consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state, were identified. They are;

- Putting in place core knowledge and information about climate change as part of compulsory education
- Developing projects by government, that will aim at helping students better r espond to the threats posed by climate change
- Embarking on tree planting and other programmes in schools, to involve students in practical community-based responses to climate change
- Investing in building school structures that are adapted to expected changes in the climate, by government
- Increased support for public awareness and education on climate change risks and adaptation options
- Developing teaching and learning materials in the field of climate change for educational institutions, by ministry of education
- Infusing into existing curriculum of teacher education programmes both at the College of Education and University levels.
- Creating avenues of further training should be provided for students to expose them to climate change and other contemporary issues in environmental problems
- Training students and teachers on climate change adaptation learning and teaching strategies an d techniques in teaching agricultural science at secondary level of education

Discussion of Findings

Findings on research question 1 revealed that increased in heat wave in the home and school environment, extreme weather events such as floods and droughts, intense tropical cyclones within the school environment, heavy rainfall and droughts which affects the sanitation of the students within the school environment, health issues, caused by the harsh weather conditions around homes and school environment, rising temperatures and desertification, rising temperatures and desertification, heavy precipitation, flooding and rising sea levels, increased malnutrition, due to unfavorable climate, Feelings of distress, hypothesis and fear, among others were the climate change issues affecting agricultural science students in senior secondary schools in Abia state. The standard deviation of all the 9 items ranged from .64 to .76, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the climate change issues affecting agricultural science students in senior secondary schools in Abia state. However, the findings of the above study were in agreement with the view of Odey (2009) who pointed out that there are noticeable issues of climate change in Nigeria such as intense thunderstorms, widespread floods, incessant droughts , desertification, sea level rise, flooding, water salination and feelings of distress and fear, among other emotional trauma.

Findings on research question 2 revealed that Students are at risk of displacement and migration, due to increase in temperature and frequent flood increase, leading to poor performance in school, students are at risk of displacement and migration, due to increase in temperature and frequent flood increase, leading to poor performance in school, climate change alters the health status of students, including increased deaths, diseases and injuries, leading to poor performance in school, economic and educational facilities / material damages, due to flooding e.g school buildings, books etc, fluctuations in weather conditions causes poor

access to ICT learning facilities in homes and schools, leading to poor performance in school, heavy rainfall and extreme weather conditions makes the teaching and learning environment unconducive, heavy rainfall and extreme weather events causes increased in the spread of endemic water, vector borne diseases and other infectious diseases among students and increased temperature may create uncomfortable conditions for learning of agricultural science were the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state. The standard deviation of all the 8 items ranged from .50 to .79, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the consequences of climate change on academic performance of agricultural science students in senior secondary schools in Abia state.. However, the findings was in agreement with Ekpoh (2009) stated these issues could manifest in form students 'Absenteeism in school leading to poor standard of education, fluctuations in weather conditions causes poor access to ICT learning facilities in homes and schools leading to poor performance in school, food security challenges, damage to infrastructure and social dislocation. Additional impacts include threat to health as rising temperature could bring about diseases such as chronic heat rashes, Cerebra-Spinal Meningitis (CSM), stroke, malaria and other related diseases. Climate change will affect every citizen, every part of our environment and our natural resources, and thus practically every aspect of our lives, our economy, our urban and sub-urban development patterns.

Findings on research question 3 further revealed that putting in place core knowledge and information about climate change as part of compulsory education, developing projects by government, that will aim at helping students better respond to the threats posed by climate change, embarking on tree planting and other programmes in schools, to involve students in practical community-based responses to climate change, investing in building school structures that are adapted to expected changes in the climate, by government, increased support for public awareness and education on climate change risks and adaptation options, developing teaching and learning materials in the field of climate change for educational institutions, by ministry of education, infusing into existing curriculum of teacher education programmes both at the College of Education and University levels, creating avenues of further training should be provided for students to expose them to climate change and other contemporary issues in environmental problems and training students and teachers on climate change adaptation learning and teaching strategies and techniques in teaching agricultural science at secondary level of education were the approaches in managing the adverse implications of climate change on academic performance of agricultural science students in senior secondary schools in Abia state. The standard deviation of all the 9 items ranged from .64 to .76, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the identified approaches in managing the adverse consequences of climate change on academic performance of agricultural science students in senior secondary schools. However, the findings also agreed with the views of Hanson(2008) who pointed out that climate change effects can be reduced by providing enabling policies that will establish waste management agencies as Independent Waste Management Authorities, as this will help in breaking even and at the same time aid them in living up to expectations and government educating the masses about the dangers of climate change and how to manage its impacts on peoples' dealings.

Conclusion

Agricultural science students in Abia state, Nigeria are affected by climate change adversely, especially as it relates to their academic performance. Hence, there is a global concern regarding the devastating impact of climate change and emphasizes on the need for creating awareness and building community capacity for adaptation strategies to mitigate the effects of climate change.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. There should be training for students and others to expose them to climate change and other contemporary issues in environmental problems and how it affects students'

academic achievement

2. Government should infuse climate change issues into existing curriculum of education of all citizens, both at the primary level, secondary level, college of Education and University levels.
3. There should be adequate dissemination of climate change information such as radio, television and other mass media should be patronized the more to improve students and other citizens' awareness of climate change issues.
4. There should be proper compatible drainage, as it helps to prevents flooding and water logging as well as helps to avoid chemical and water leakage
5. Government should developed a comprehensive education and outreach programmes for schools teachers, which can be enhanced through conferences and seminars to train teachers on issues of climate change and the danger it poses to human development.

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