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## Repositioning School Plant In The Face Of Climate Change in Secondary Schools in Imo State

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By

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### Abstract

*The paper is entitled repositioning school plant in the face of climate change in secondary schools in Imo state. This study was carried out as a result of the devastating impact of climate change on school plant following the massive flooding experienced in 2012-2013. Climate change is a natural phenomenon which has been established by scholars to be having global impact. For example, considering the devastating effect climate change has caused on school plant, it becomes expedient that school plant has to be repositioned to allow effective teaching and learning in schools. Such strategies like good leadership, effective monitoring of the users of school plant, enhancing school maintenance culture through planting of trees, cutting down overgrown trees, avoiding the use of oil paint to prevent excessive heat in the classroom will help to reposition school plant in the face of climate change.*

**Keywords:** Repositioning, School Plant, Climate Change, Secondary Schools

Human and material resources are needed for the realization of the objectives of secondary school. School plant which includes all structures put on the school ground (e.g. staff offices, classrooms, conveniences, play-grounds, library, laboratories, workshops, information/computer centre, canteens and other facilities) need to be in good condition and adequate for effective teaching and learning. The school principal who has the responsibility of maintaining human and material resources in the school considers the adequacy, suitability, state and location of school plant in the day to day

running of the school. The different facilities within the school must also take account of the nature and types of school activities and programmes, climate change, welfare of the students, the convenience of the staff and the needs of the school management for the realization of the set objectives.

Climate change is a statistical alteration in climate which is being suffered worldwide. For example, flooding is experienced in Nigeria, earthquake in Mexico, tsunami in Japan, Hurricane Catherina, Hurricane Rita, Wildfire in Texas and California, Tropical storm in Vietnam, Hurricane sandy in Mexico, Typhoon in Taiwan and Philippines, (Chris-Korie, 2016 ). In Nigeria and Imo State in particular, climate change has devastating effect on school plant. For instance, there are cases of blown-off roofs, flooding and blocked drainage systems in secondary schools in Ohaji/Egbema and Oguta Local Government Areas between 2012 to 2014 which disrupted academic activities and also affected enrollment inspite of Imo State Government's free education and school reconstruction. This Scenario calls for urgent attention by repositioning the state of the school plant.

### **The Problem**

Climate change has become a disturbing global issue due to its attendant negative impacts on humanity. World bodies and countries at varied Fora have deliberated and made some predictions of increase in extreme climate events such as unusual storms, flood, changing pattern of rainfall, strong winds, drought and tidal waves in Africa. These adverse effects of climate change are already evident with the developing countries being more vulnerable.

In 2012, various parts of Nigeria including Imo State experienced massive flooding. Some Local Government Areas like Ohaji/Egbema and Oguta had some of their school buildings collapsed, school records, instructional materials and farmlands damaged, schools were forced to close while some others were used as refugee camps for flood victims. In the light of this situation, the researchers are worried and try to seek ways of repositioning school plant in the face of climate change.

### **Relevance**

The relevance of this paper cannot be over emphasized judging from the climate change impacts on education reported by UNICEF (2009), that the increased frequency and magnitude of extreme weather events in Nigeria are likely to pose threats to school activities such as school closures, learning capacities, and overall performance in academic work. Most schools in Nigeria are small and designed with poor ventilation for the number of pupils/students who attend especially in this Era of UBE. The increase in temperature will add to the discomfort felt by the students in the classrooms and may contribute to the heat stresses which adversely affect the mental capacity of the teachers and the students. Similarly, the frequency of severe events such as rainfall, droughts, flood and storms already predicted have started having

tremendous negative impact on school buildings, play ground and other learning facilities, which is the main focus of this paper.

There is no doubt that extreme weather events have both short-term and long-term Socio-economic and health effects on students, teachers and the public. Climate change comes with increased spread of endemic water and vector-borne diseases and shortage of water and food as was experienced in Ohaji/Egbema and Oguta Local Government Areas in 2012/2013. With increased risk of diseases, and children being the most vulnerable to health hazards, more deaths of school children might occur, reduced attendance to school, drop-out, malnutrition and poverty as a result of famine will definitely affect school activities. Chris- Korie (2016) found out that the state of most secondary schools' school plant in Imo State was deplorable as a result of climate change hence the need to address the situation.

### **Review of Literature**

There is need to review certain related concepts of this study.

### **School Plant**

School Plant is one of the input resources needed for the realization of the school objectives. According to Aguillar (2011), school plant refers to the material provision of the school. The school campus, building, playgrounds, library, laboratories, classrooms, furniture, equipments, hostels, common rooms, canteens, all these put together mean the same thing with what the school plant stands for. This follows that the school plant is an integral part of the learning environment. Aririguzo (2009) defines facilities as the entire school plant such as blocks of classrooms, staff rooms, laboratories, workshops, visual aids, electricity, water, chairs, tables, stationeries, playground, storage spaces and others which a school has. It has been realized that school plant and facilities are very important in the development and improvement of education in Nigeria. A school without them, either public or private, may not be able to achieve the stated goals and objectives of the system. They are very vital because they aid teaching and Learning. No wonder Effangu (2007) noted that a clean environment puts the learner in a proper frame of mind for learning and the teacher is likely to put in his best if he/has ready access to books and other teaching aids.

### **State of School Plant in Secondary Schools**

It has been observed by scholars that the state of school plant in Imo state secondary schools is deplorable. Obiefule(2002) commented on the poor infrastructure in Imo State school system and derived that a good number of schools are still in dilapidated form and facilities are in poor condition due to climate change. A study carried out by Chris-Korie(2016) found the state of the school plant in secondary schools in Imo state very deplorable. She found out that the school plant have

experiences of blown off roofs due to frequent stormy wind, over flooding of play ground as a result of heavy rainfall flood, excessive heat from increased temperature from blocked drainage system due to erosion among others. On the part of government and individuals there was huge financial loss.

Iheanacho (1996) observed that Nigerian schools are in shambles and so mass failure and high rate of examination malpractice are the consequences. Durojaiye (1996) and Adejuro (2004) lamented on the poor physical conditions of the secondary schools. They jointly observed that lack of seats, tables, overcrowded classrooms without ceiling fans, dusty floors, environment with excessive heat or cold make children uncomfortable. According to them, poor conditions have adverse psychological and physiological effects on the students and the teachers. They also posited that students in such poor school environment usually lack concentration in their academic work and can easily lose interest in school activities. They acknowledged that when classrooms are poorly illuminated, students strain their eyes to read and if schools are located in noisy zones, there would be many distractions.

UNDP (2008<sup>B</sup>) also noted that high illiteracy rate and low awareness of the issue of climate change are challenges facing Nigeria in climate change adaptation-(an adjustment in natural or human systems in response to actual or expected climate stimuli, their effect that moderates or exploits beneficial opportunities (IPCC, 2007). Adaptation is about the future and the children, youth, men and women have important responsibilities towards meeting the challenges of the future. These responsibilities cannot be carried out without adequate awareness through education, hence Nigeria adopted article 6 of the United Nations framework convention on climate change (UNFCCC) which emphasizes the need for improved public perception of climate change. It therefore behoves on education stakeholders especially the policy makers and the implementers to adopt policies that when implemented will address the issue of climate change effects.

Since climate change is having these effects on school plant, there is need to reposition the school plant. This calls for environmental education and programmes at individual, institutional, government and community levels. It is necessary to get all and sundry involved and participate in decision making, community action or problem solving on environmental issues with the view of developing a healthy, sustainable society.

### **Importance of School Plant**

The importance of the school plant cannot be over emphasized. The teaching and learning processes cannot take place without the school plant being in good condition. Knezevich (1975) described the school plant as a major component of the school facility. He went further to say that it is the space interpretation of the school curriculum. He emphasized that the curriculum finds its physical expression in construction and arrangement of the school plant, which is a controlled environment

that facilitates the teaching and learning processes and also protects the physical wellbeing of the occupants. The first step towards effective formal education is the provision, maintenance and proper utilization of school buildings, laboratories, libraries, furniture, field and equipment.

According to Fadipe in Oku, Emenalo and Okeke (2013), school plant is the non-consumable materials in school for the promotion of teaching and learning activities. These include school site, buildings, equipment, machinery, vehicles, books, computers, electrical and water facilities as well as field and farm. Emenalo (2006) went further to say that the school plant constitute essential ingredients for effective teaching and learning because learning occurs as a result of series of interaction between the learner and his environment which consists of these facilities. Kochar (1978) in Olga (2011) stated that school plant utilization for education purposes requires careful direction or much of its effectiveness could be lost. If the design of the facility follows its function, then the type of activity specified for the facility should be taking place in that facility.

In his own view, Aguillar (2011) described the school plant as one of the major aspects of school administration. He went further to say that school plant refers to the material provisions of the school and concluded that it is an integral part of the learning environment. Writing on the importance of school facilities, Bello (2000), is of the opinion that adequate school facilities as well as conducive and beautiful environment act as an attraction or magnetic force to all children alike. He further stated that children who came from poor homes, being in such environment gives them a sense of relief and pleasant change. Chukwuma and Ajudeonu (2007) opined that for effective teaching and learning to take place, the learning environment has to be conducive. They saw learning environment as the classroom as well as teachers and students in learning activities, teachers making use of appropriate instructional materials and the existence of good relationship between the principal, teachers and learners.

### **Climate Change**

In recent times, people have experienced excessive heat, thunder storm, stormy winds, flooding and erosion. These are as a result of climate change. According to Pender (2008), climate change is a statistically significant variation in climate that persists for an extended period, typically decades or longer. By implications therefore, when such variations occur, they create negative impacts on the school plant and activities. Climate change as defined by Ukaga (2009) is the average weather condition (temperature, rainfall, humidity, solar radiation, cloud and wind) over a period of time such as 25-30years. And in a particular geographic region. He maintained that climate involves variations in interaction among different physical components of man's environment such as the atmosphere, the oceans, sea, ice, and land features which make up the climate system, components whether they are from internal or external forces.

This implies that the situation can be changed if human beings transform their ways of living to be more sustained and friendly to the environment.

### **Causes of Climate Change**

The causes of Climate change can be both human and natural.

Nwafor Eboh (2003), Anyadike (2009), highlight the human activities that influence climate change to include. Pollution from industrial processes, agricultural practices (including bush burning and deforestation), desertification, burning of fossil fuels such as; firewood, coal, oil and gas. The natural phenomena that contribute to climate change include solar radiation, variations on the earth's Orbit (Orbital variation) volcanic eruptions and ocean variations. Satis (1990) also observed that ozone layer (a translucent screen acting as a nourishing umbrella which protects the earth from the harsh effect of the solar ultraviolet radiation) is now damaged and depleted by the pollutants introduced through various factors such as: (a) Human activities (b) Presence of surface generated pollutants which inject series of high reactive atoms and molecules (radicals) into the atmosphere which speed up ozone reduction processes. Such radicals are Nitrogen Oxide (NO) Chlorine (Cl) and Chlorine Oxide (ClO), (C) presence of water Vapour and hydroperoxyl radicals in the atmosphere. The depletion of the ozone layer however leads to climate change and global warming. The result however leads to a rise in sea level, abnormal temperature patterns, water supply decline, threat to the ecosystem and food shortage. It also affects life through exposure to the strong ultraviolet radiation from the sun. It is important to note that deforestation (cutting down of trees without planting any in replacement) causes great hotness of the earth, desertification of the land and excessive sunlight.

### **Impact of Climate Change on School Plant**

Climate change has impacted negatively on school plant. A study carried out by Chris-Korie (2016) found out that some secondary schools in Imo State are in dilapidated conditions as a result of extreme weather events. Findings of the study revealed among others that, there have been heavy rainfall, excessive heat in the classrooms and frequent stormy winds than in recent past years. Also, the impact of climate change on school plant are over flooding of school ground, blown-off roofs, leaking roofs, erosion and blocked drainage system. A closer look on the findings showed that the negative impacts of climate change on school plant were more on those secondary schools located at Ohaji/Egbema and Oguta Local Government Areas. These places suffered massive flooding in 2012 more than other areas in Imo State. Obiefule (2002) also commented on the poor infrastructure in Imo State school system and derived that a good number of schools are still in dilapidated form and facilities are in poor condition due to climate change. Durojaiye (1996) and Adejuro (2004) lamented on the poor physical conditions of our secondary schools. They jointly observed that lack of seats, tables, overcrowded classrooms without ceiling fans, dusty floors,

environment with excessive heat or cold make children uncomfortable. According to them, poor conditions have adverse psychological and physiological effects on the students and the teachers. They also posited that students in such poor school environment usually lack concentration in their academic work and can easily lose interest in school activities if classrooms are not illuminated, students strain their eyes to read and if schools are located in noisy zones, there would be many distractions.

### **Repositioning**

The researchers of this paper deem it expedient to look into enduring and mitigating measures to the adverse effects of climate change on school plant so as to adapt to the Phenomenon. Principals, teachers, students, individuals, community and the Government have vital roles to play in repositioning of school plant in the face of climate change. This is considered under the following headings;

### **Good Leadership**

Facilities cannot manage themselves in the face of climate change except there is good leadership that will set the ball rolling. In secondary schools, principals have vital roles to play in the maintenance of school plant. They should be more concerned about what the students' needs are at their developmental stages and instructional levels. The students should be properly accommodated in their various classrooms and adequate facilities and equipment should be for both indoor and outdoor learning so as to cater for overall development of the learners. These facilities should be properly maintained for them to render their services always; physically, mentally, emotionally, socially, and others. According to Knezevich (1975), provision of safe structure, adequate sanitary facilities, a balanced visual environment and sufficient shelter space for work and play are necessary to meet the physical needs of the students. He went further to assert that emotional needs are met by creating pleasant surroundings, a friendly atmosphere and an inspiring environment. The principal of a school should appoint people whose task it is to check the school plant and submit their report for adequate attention.

### **Effective Monitoring of the Users of School Plant:**

Every school should set up a monitoring team who shall write official reports about their findings. This would go a long way to ascertain the extent of damage by climate change and help in their prompt maintenance. The users should also be educated to make use of equipment that are meant for teaching and learning. This explains why in-service training is recommended for both tutorial and non-tutorial staff. The training will help them understand the facilities and equipment better for service delivery. Students should be meant to understand that the school plant is for the interest

of all and all hands must be on deck to keep them in good condition in spite of climate change.

### **Enhancing School Maintenance Culture**

In some secondary schools in Imo State, there are laxities with regards to the maintenance of school plant in the face of climate change. Some teachers do not care how the situation is whether these plants are in good condition or not. They come to school, perform their duties and leave at the end of the day. For example, if there is no light in the classrooms, fans will not be working, the teachers and those they teach will be sweating, there will be disruption of private reading and evening classes. This calls for prompt repairs in order to save costs and make education goals and objectives achievable. To support this view, Olutola (1981) described school plant as the keeping of school site, building and equipment in as near their original state of utility as possible. All hands must be on deck in repositioning the school plant. This involves planting of trees to act as wind breakers, cutting down over grown trees, avoiding use of oil paint to reduce excessive heat in the classrooms.

On the part of the government maintenance culture should be upheld in schools or be made a priority. When school plant is taken care of, they last long thereby saving costs for the government. This explains why Oluchukwu (1998) stressed that maintenance culture should be upheld in school or be made a priority in view of the huge cost of procurement of new materials. To support this view, Olagboye (1998) and Ajayi (2007) in Amanchukwu and Olalube (2015) identified five types of maintenance in the school system to include:

- Corrective maintenance which involves repairing of faults on time e.g. Electrical faults.
- Preventive and predictive maintenance.
- Shut down maintenance down when the learners are on holidays to avoid accident.
- Running maintenance done when the plant or a component of it is operating.
- Breakdown maintenance which focuses on rectifying breakdowns in any component of the school plant.

### **Conclusion**

Climate change has created global concern because of its negative impacts. The education sector is not left out in this source of global concern especially as it affects the school plant which is an important aspect of the school environment. The climate change poses a threat to the education sector and this calls for adaptation to its challenges. Adaptation is about the future, and the children, youth, men and women have important responsibilities towards it. The responsibilities include to a large extent adopting measures to reposition the school plant in the face of climate change in order

to actualize the goals and objectives of secondary schools in Nigeria at large and Imo State in particular.

### **Recommendations**

From the fore-going, it is recommended that:

1. Government through its agencies-ministry of Education, SEMB, SUBEB and LGEA should ensure that the policy on teacher student ration of 1:35 or 40 is complied with by employing and evenly distributing teachers to schools.
2. Government should maintain that adequate solid building with climate change sensitive materials are provided for schools to decongest the overcrowded classrooms.
3. Efforts should be made by the inspectorate Division of Ministry of Education to ensure that schools are properly located, not in a noisy and bad topography area, and that the buildings are adequately spaced and laid out to mitigate climate change impacts.
4. Government should cause adequate and intensive enlightenment sustainability.
5. Curriculum planners in collaboration with those in the mainstream of environmental issues should articulate and integrate environmental and climate concepts and contents that cut across ages or class levels into the school curriculum.
6. Government should mount workshop/seminars for principals and teachers on environmental issues- prevention, mitigation and adaption.
7. Government should budget, allocate and release special funds to principals to regularly maintain school plant-infrastructure facilities in the face of climate change.
8. Principals of schools should chose suitable materials and colours for school uniform in response to climate change impacts.
9. The principals and agriculture teachers should encourage and facilitate the planting of wind-breaker trees, ornamental flowers and erosion checking grasses in schools.
10. Principals and teachers should embark on school and community sensitization on the dangers of building refuse, littering of garbage and the correct way of refuse or trash disposal and organic waste.
11. Government should revisit and properly and evenly implement the programmes of school feeding as well as school health to cushion the effects of malnutrition and diseases arising from water and vector borne.

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*Repositioning School Plant In The Face Of Climate Change in Secondary Schools in Imo State*

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