

## **Global Warming: Implication for Library and Information Professionals**

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### **Abstract**

*This study examined global warming and its implication for library and information professionals. The problems associated with global warming were identified and solutions proffered. It concludes that the issue of climate change adaptation should also be addressed through international cooperation and Libraries should include global warming in user-education programs during orientation programme for fresh students in the Nigerian Universities, global warming should be one of the points of emphasis and libraries should recycle their old papers, rather than resorting to burning or discarding them to avoid fossil being emitted to the atmosphere.*

**Keyword:** Global Warming, Greengas, Library; Climate Change, Fossil Fuels, Carbon Dioxide

### **Introduction**

Climate change is the defining human development is ultimately about expanding human potential and enlarging human freedom. It is about people developing the capacities that empower them to make choices and to lead lives that they value (UNDP, 2007). Climate change threatens to erode human freedom and limit choice.

Climate change is now scientifically established fact. Today, we are witnessing at firsthand what could be the onset of major human development reversal in our life time. The exact impact of greenhouse gas emission is not easy to forecast and there is a lot of uncertainty in the science when it comes to predictive capability. But we now know enough to recognize that there are high risks, potentially catastrophic ones, including the melting ice sheets on green land and the West Antarctic and changes in the course of Gulf Stream that would bring about drastic climatic change. Climate change is already affecting some of the poorest and most vulnerable communities around the world. A world-wide 3<sup>0</sup> centigrade increase (compared to pre0industrial temperatures) over the coming decades would result in a range of localized increases that could reach twice as high in some locations. The effect is increased droughts, extreme weather events, tropical storms and seal level rises on large parts of Africa. On many small island states and coastal zones will be inflicted. But some of the world's poorest people, the consequences could be apocalyptic (Human Development Report, 207/2008).

In the long run, climate change is a massive threat to human development and in some places it is already under-running the international community's extreme poverty and efforts to reduce other consequences violent conflicts, insufficient resources, lack of coordination and weak policies continue to slow down development progress, particularly in Africa (Human Development Report 2007/2008). How the world deals with climate change today will have a direct bearing on human development prospects of a large section of humanity. Failure will consign the poorest 40 percent of the world's population- some 2.6 billion people to a future of diminished opportunity. Thus, governments and non-governmental organizations (NGOs) both locally, nationally and internationally are quickly looking at the effects of climate change on sundry aspects of life with view to mitigating and solving them.

This provides the motivation for the authors of this paper to address the implication of Global Warming on the Library and Information Professionals. If climate change has effects on agriculture, business sand the entire national economy, it must also have serious effect on library and information materials, services and the personnel.

## **Objectives of the Study**

The Study has the Following Objectives:

1. To create awareness and sensitize information professionals on Global Warming.
2. To examine the implication of global warming on library and information professionals in Nigeria
3. To suggest ways to combat the effects of climate change on library and information service.

## **Literature Review**

### **The Concept of Global Warming**

The term Global Warming refers, to the observation that the atmosphere near the earth's surface is warming. This warming is one of many kinds of climate change the Earth has gone through in the past and will continue to go through in the future (NOAA Satellite and Information Services, 2008).

Increase in the global average surface temperature resulting from enhancement of the greenhouse effect, primarily in air pollution. In 2007 the UN Inter governmental panel on climate change forecasted that by 2010 global average surface temperatures would increase 3.2 – 7.2<sup>0</sup>F (1.8 – 4.<sup>0</sup>C), depending on a range of scenarios for greenhouse gas emissions, and stated that it was 90 percent certain that most of the warming observed over the previous half century could be attributed to greenhouse gas emissions produced by human activities (i.e industrial processes and transportation). Gases created through human industrial and agricultural practices (primarily carbon dioxide from burning fossil fuels and wood, as well as methane, nitrous oxide, and chlorofluoro carbons) increase the heat-reflecting potential of the atmosphere, thereby raising the planet's average temperature.

Global warming is when the earth heats up (the temperature rises). It happens when greenhouse gases (carbon dioxide, water vapor, nitrous oxide, and methane) trap heat and light from the sun in the earth's atmosphere, which increases the temperature. This hurts many people, animals and plants. Many cannot take the changes, so they die. (National Climate Data Centre, 2008, Google Business, 2006).

### **Why is Global Warming Important?**

Temperature increases will have significant impacts on human activities, including where we can live, what food we can grow, how and where we can grow food, and organisms we consider pests can thrive. To be prepared for the effects of these potential impacts we need to know how much the earth is warming, how long the Earth has been warming, and what has caused the warming. Answers to these questions will not only provide us with a better basis for making decisions related to issues such as water resources and agricultural planning, it will also enable us to take precautions on the aspects it affects our profession.

### **What are the greenhouse Effects?**

The greenhouse gases effect is when the temperature rises because the sun's heat and light is trapped in the earth's atmosphere. This is like when heat is trapped in a car. On a very hot day, the car gets hotter when it is out in the parking lot. This is because the heat and light from the sun can get into the car, by going through the atmosphere, but it can't get out. As a result, the temperature rises (World Almanac, 2000).

Our planet absorbs radiant energy from the sun and emits some of that energy back to space. The term greenhouse effect describes how water vapor, carbon dioxide, and other greenhouse gases in the atmosphere alter the return of energy to space, and in turn, change the temperature at the Earth's Surface. These greenhouse gases absorb some of the energy that is emitted from the Earth's surface, preventing this energy from being lost to space. As a result, the lower atmosphere warms and sends some of this energy back to the Earth's surface. When the energy is recycled in this way, the earth's surface warms (National Climatic Data center, 2008). Although the greenhouse effect makes the earth able to have people living on it, if there is too many gases, the earth can get unusually warmer, and many plants, animals and people will die. They will die because there would be less food (crops like corn, wheat and other vegetables and fruits). (National Climate Data Centre, 2008, Think quest, 2008).

### **What are Green House Gases**

Greenhouse gases are gases in the Earth's atmosphere that collect heat and light from the sun. With too many greenhouse gases in the air, the earth's atmosphere will become too hot which leads to catastrophic effects on humans, plants and animals.

Greenhouse gases occur naturally in the earth atmosphere, but are also being added by human activities. This happens primarily through the burning of fossil fuels, such as coal, oil and natural gas, which releases carbon dioxide to the atmosphere. Many scientists have now concluded that global warming can be explained by a human caused enhancement of the greenhouse effect (National Climate and Data Center, 2008; and United States Environmental Protection agency, 2001).

### **Global Warming and the Environment**

Global warming is affecting many parts of the world. Global warming makes the sea to rise, and when the sea rises, the water covers many low land islands. This is a big problem for many of the plants, animals and people on islands. The water covers the plants and causes some of them to die. When plants and animals die, people lose two sources of food, plant food and animal food. People may also lose their homes. As a result, they would also have to leave the area of die.

The oceans are affected by global warming in other ways as well. With the oceans getting heated up, it is harming and killing algae on the ocean. An alga is a producer that we can see floating on top of the water. Algae produces food for other animals through photosynthesis, and serves as food to many consumers in the ocean such as small fishes, crabs, whales and many other animals. When the alga is destroyed as a result of too much heat, it has a spiral effect on other animals in the sea, and consequently, man is affected. Global warming does not only affect plants and animals in the sea, it is also destroying many big forests. The pollution and causes global warming is linked to acid rain. Acid rain gradually destroys almost everything it touches. Global warming is linked to acid rain. Acid rain gradually destroys almost everything it touches. Global warming is also causing many more fires that wipe out whole forests. Some plants and trees leaves can be so dry that they catch on fire. One of the biggest dilemmas concerning Global Warming is the cutting down of the rainforest for any reason. Plants naturally absorb carbon dioxide and give off oxygen in the process of photosynthesis, so the CO<sub>2</sub> is taken out of the atmosphere. We are cutting down forests, which reduce the number of trees that will take CO<sub>2</sub> out of the atmosphere, and also the CO<sub>2</sub> in the trees is released.

### **Causes of Global Warming**

Many things cause global warming.

The following causes of global warming have been identified:

- Electrical pollution
- Burning of fossil fuels, e.g. oil and petroleum
- Destruction of carbon sinks on the Earth which (absorb and store) Carbon. The three major carbon dioxide sinks are: the atmosphere, the land and the oceans.
- The release of greenhouse gases, especially CO<sub>2</sub> into the atmosphere, primarily through the use of fossil fuels.

**Methane:** A molecule of methane (CH<sub>4</sub>) traps 20 times as much heat as carbon dioxide molecule. Sources of methane include landfills, natural gas and petroleum systems, agriculture activities, coal mining, stationary and mobile combustion, waste water treatment, and certain industrial processes.

Water Vapor is also a greenhouse gas. Like CO<sub>2</sub>, water vapor traps heat and is a potent greenhouse gas. Warming will cause more water to evaporate, because the warmer air will hold more water vapor, which in turn, accelerates the rate of warming.

Clouds During the day, the clouds can shield the Earth from the sun's heat keeping the earth cooler. Or at night, clouds can trap the heat rising from the ground, making the Earth warmer.

Some other examples of using energy and polluting the air are:

- Turning on a light
- Watching Television
- Listening to a stereo
- Washing or drying clothes
- Using a hair dryer
- Riding in a car
- Heating a meal in the microwave
- Using an air conditioner

- Playing a video game
- Using a dish washer (Web of creation 2006, power-score card, 2002, Think quest, 1999, and EcoBridge, 2009).

### **Consequences of Global Warming**

The following are identified consequences of global warming upon the Earth:

- It will change weather patterns. Where precipitation is greater than evaporation, there will be floods; while where evaporation is greater than precipitation, there will be droughts.
- Alters the oceans. The entire ecosystem of the North Sea is in a state of collapse, “record sea temperatures are killing off the plankton on which all life in the sea depends, because they underpin the entire marine food chain. Fish stocks and sea bird population have slumped”.
- It will change Ecosystem and Habitat. In addition to habitat loss from urban sprawl and pollution, warming will also be a major factor. A quarter of all species of plants and land animals, or more than a million in all, could be driven to extinction”. Massive extinction has accrued five times during the earth’s history. The last one was the extinction of the dinosaurs, 65 million years ago. Scientists are calling what is occurring now, **the Sixth Mass Extinction**.
- Public Health Issue. Warming will increase the spread of infectious disease, heat, stress and also malnutrition because of its impact on agriculture. A heat wave in Europe killed an estimated 35,000 people.
- It will cause Ice to melt and seas to Rise. The ice sheets in the two poles and Greenland, and in mountain glaciers around the world, are melting. The result is that the sea level has begun to rise at a measurable and alarming rate. If the sea level rises in the range expected by the IPCC, many island nations, as well as all-low lying. Inter-governmental Panel on Climate Change (PPCC).
- Scientists also say that the extreme weather phenomena such as floods, droughts, heat waves, cyclones and dissertation being experienced in different parts of the globe are among the far reaching consequences of climate change (Abutu, 2009).
- Abutu Alex (2009, Tuesday) climate change; between politics and Reality. Daily, Independent January, 13, page 7 Coastal areas, will be under water. The affects of sea level along the coast will cause flooding erosion, and saltwater intrusion into aquifers and fresh water habitats.
- Creates Abrupt Warming. Available evidence suggests that abrupt climate changes are not only possible but likely in the future, potentially with large impacts on ecosystems and societies.
- Creates Abrupt Cooling which is equally catastrophic. (EcoBridge, 2009).

### **The Library and Climate Change**

Libraries all over the world have several factors justifying their existence. Libraries can be learning –Centre, information providers, cultural institutions, guardians of a cultural heritage as well as architecturally exciting monuments that together with museums, religious centres and other significant buildings make up an important part of a city’s profile (Cullhed, 2005).

A library is always a storage space for library materials and a working place for both personnel and patrons. To be able to effectively perform its functions as a safe storage space for information, it is necessary to surround the collections with technical systems which will protect the materials form damage and chemical breakdown that otherwise would make the materials inaccessible in a near or distant future. Preservation is therefore a core issue for that information for the future. National Libraries Universities, public libraries as well as special libraries have this responsibility.

Crucial factors for a successful protection of a library collection are for example, proper care and handling, practical conservation treatments and digitization, or other means of duplicating. A disaster plan is essential, and, the perhaps the most effective means of slowing down the chemical deterioration is storage of materials that are to be kept for use both now and future, in climatically controlled Stacks. Chemical breakdown is considered to be double per every 10 (ten) degrees <sup>0</sup>C, and low temperature storage is therefore ideal. High levels of humidity can cause mould in both the high and low temperature cause mould in both the high and low temperature range which has to be kept under control. In a hot and dry climate, desiccation can cause significant distortion in certain materials such as vellum. Thus, in cognizance of the difficulties involved in climate control, IFLA guidelines states “in general, the library materials should be stored and used in stable condition such are not too hot, too dry, and not too dump”. (IFLA, 2005).

## **Energy and Libraries**

During the heat wave in Europe in the summer of 2003, technical systems were strained on the breaking point in libraries and other institutions in the cultural sector, which are dependent on an even preservation climate for the safe guarding of their collections (Culler, 2005). Buildings such as the museum of modern art in Vienna, with its black basalt stone façade, and the Bibliotheque Nationale in Paris with its glass towers, both had problems keeping the temperature within reasonable levels. Within the European commission Fifth framework for research, which was completed in November, 2004, the issues of buildings of buildings and sustainable energy solutions were addressed within the CUBART – Project or the European Architecture with integrated Renewable and Real Time user feedback. The innovative energy system contains the following elements:

- A highly insulated envelope
- Effective solar shading which uses natural elements such as trees and roof overhangs as well as shading by louvers run by photovoltaic cells.
- A low rate of natural air infiltration
- An exposed internal concrete construction, which retains the heat,
- An efficient low-pressure mechanical ventilation system
- An electrically powered heat pump for heating via the air and thermostically controlled perimeter radiators. During the summer, it cools the building, making further air conditioning and refrigerating unnecessary.
- Excess energy can be exported to adjacent buildings
- The energy is 100% renewable
- Compact fluorescent lighting, occupancy sensors and sun-shading devices are also used to improve energy efficiency.

Library architectures and library officers responsible for building design need to take into account that technical systems of a library need to be integrated with the construction of the building to combat and effect of climate change.

## **Managing Risks through Information**

Adapting to climate change involves managing risk by improving the quality of information and its use, providing insurance against climate change risk, adopting known good practices to strengthen the resilience of vulnerable livelihood systems, and finding new institutional and technological solutions. People in the insurance business make a clear distinction between certain and uncertain risks: a risk is certain if the probabilities of specific states occurring in the future are precisely known, and uncertain if these probabilities are not precisely known (Kunreuther and Kerjan, 2006).

Talking about climate change, there is still much uncertainty about the probabilities of various possible changes occurring in specific locations. This can be dealt with by investing in improved information to reduce the degree of local uncertainty. Knowledge about the future high degree of uncertain, but the current high degree of uncertainty about potential local impacts of climate change could be reduced through information collection, storage and dissemination.

Information is a crucial tool in decision making, particularly in the context of climate change where there is high uncertainty. The type of information, its source(s), to whom it is targeted, and how it is to be used are important elements in determining the impact and response that information may generate. Good and timely provided information about uncertainties and risks can make the difference between resilience and collapse for an affected livelihood system or ecosystem, as in the case of climate change.

Although it has been scientifically demonstrated that climate is changing worldwide, not everyone has the same understanding of, or places the same value on the significance of scientific results. For example, the climate data made available to rural farmers do not often refer to local knowledge on climate and agriculture which leads to resentment toward scientific data, or the abandonment of information that may have been useful (Turton, 2001). This mismatch between understanding and interpretations of climate by farmers who rely on traditional knowledge constitutes an important challenge for information workers in terms of providing climate information for a range of decision makers, with differing education and resource levels (Roncoli, 2006).

## **Adaptation and Mitigation**

Adaptation to global warming consists of initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change. According to the former chief Scientific Adviser to the UK Government, David King, as cited by Wikipedia (2009), it is likely that adaptation to global warming is inevitable as it is unlikely that levels of greenhouse gases can be kept low enough to avoid a projected temperature rise of 2<sup>0</sup>c.

Climate change mitigation is about transforming the way that we produce and use energy. It is about living within the bounds of ecological sustainability (Human Development Report 2007/2008). Extremes, variability, and rates of change are key features in addressing vulnerability and adaptation to climate change. The ability of human systems to adapt to and cope with climate change generally depends on such factors as wealth, technology, education, information, skills, infrastructure, and access to resources, management capacities and sociopolitical will.

### **Why Adaptation?**

Adaptation to climate change is necessary principally for two reasons:

- (i) It is a strategy to compliment climate change mitigation efforts because it is sure that all climate change can be mitigated.
- (ii) Adaptation has the potential to reduce adverse impacts of climate change and to enhance beneficial impacts. There is potential for more advantaged and less advantage countries to enhance and/or acquire adaptive capabilities.

Adaptation is a policy issue and the following principles should be considered when designing adaptation policy:

1. The effects of climate change vary by region/various information resources.
2. The effects of climate change may vary a cross demographic groups/personnel's
3. Climate change poses both risks and opportunities
4. Adaptive response varies in effectiveness.
5. Adaptation is not without a cost.
6. Many opportunities for adaptation meek sense whether or not the effects of climate change are realized.

### **Methods of Adaptation**

Wikipedia (2009) highlighted some adaptation methods as follows:

- Planting drought tolerant crop varieties
- Spending more on irrigation
- Rain water storage
- Weather control through seeding clouds with chemicals to produce rain when and where needed
- Damming glacial lakes
- Geo engineering through techniques such as solar radiation management, greenhouse gas remediation, hydrological geo engineering
- Assisting disadvantaged nations.

### **Can We Stop Global Warming?**

The question that may be agitating the minds of many could be “can we stop Global Warming, and its adverse effects? “Yes, we can”. Global warming is a dramatically urgent and serious problem such that we don't have to wait for government to find a solution for this problem. Each individual can be of tremendous help adapting a more responsive lifestyle since global warming is human caused. Some little everyday things we can do include:

- Replacing a regular incandescent light bulb with a compact fluorescent light bulb thereby saving 300 pounds of carbon dioxide a year.
- Install a programmable thermostat which will automatically lower the heat or air conditioning at night and raise them against in the morning.
- Clean or replace filters on your furnace and air conditioner. Cleaning a dirty air filter can save 350 pounds of carbon dioxide a year.
- Choose energy efficient appliances when making new purchases
- Do not leave appliances on standby

- Defrost old fridges and freezers regularly.
- Cover your pot when cooking
- Use less hot water because it takes a lot of energy to heat water to boiling point.
- Recycling at home (waste) is imperative
- Recycle all the organic wastes.
- Planting trees
- Regularly maintain your cars.
- Choose more fuel efficient vehicles
- Fly less because aircrafts emit more carbon dioxide than cars.
- Protect and conserve forest worldwide.
- Carpooling. This is driving with someone to the same direction
- Do not turn on television, computer, and lights for a long time (Maurizio, 2009; Global warming, 2002).

### **International Cooperation on Global Change**

If the world governments act now it will be possible to keep 21<sup>st</sup> century global temperature increases within a 2<sup>o</sup>C threshold above preindustrial levels. Achieving this will require a high level of leadership and unparalleled international cooperation. Climate Change threatens the entire human family. Hence it also provides an opportunity to come together and forge a collective response to a global problem (Ki-moon, 2007/2008).

Collective action is not an option but an imperative. The Earth's atmosphere does not differentiate greenhouse gasses by countries of origin. One tone of green house gases from China carries the same weight as one tone of green house gases from the United States, and one Country's emissions are another country's climate change problem. It follows that no one country can win the battle against climate acting alone (Human Development Report 2007/2008 Dewar, 2009).

However, many governments are setting bold targets for cutting greenhouse gases emissions. Climate change mitigation has now registered firmly on the agenda of the Group (G8) industrialized nations. And dialogue between developed and developing countries is strengthening (Courtly, 2007, and Human Development Report 2007/2008).

While government may recognize the realities of global warming, political action continues to fall far short of the minimum needed to resolve the climate change problem. The gap between scientific evident and political response remains large. In the developed world, some countries have yet to establish ambitious targets for cutting greenhouse gas emissions. Others have set target without putting in place and energy policy reforms needed to achieve them. The deeper problem is that the world lacks clear, credible and long term multilateral frameworks that chart a course for avoiding dangerous climate change.

Developed countries have to take the lead, because they carry the burden of historic responsibility for the climate change problem. They have the financial resources and technological capabilities to initiate deep and early cuts in emission.

The principle of "common but differentiated responsibility", one of the foundations of the Kyoto framework-does not mean that the developing countries should fold their hands and do nothing. The credibility of any multilateral agreement will hinge on the participation of major emitters in the developing world. Hence, Nigerian Government had proposed a paltry sum of \$1.5 million for climate change in the 2009 appropriate Bill (Bankole, 2006). Commending the Nigerian effort, British High Commissioner to Nigeria, Bob Dewar (2009) said that coming year will be critical in global efforts to tackle climate change countries must act collectively to reduce carbon emissions as failure to do so will bring upon the world "a human and economic" catastrophe that will make today crisis too small. Ubani (2009) averred that the future of every country depends on what they do to address climate change, as the issue is remotely connected to energy use across the world.

### **Nigerian and Global Warming**

Indications are Nigeria may be at the receiving end of negative impacts of global warming. Onyedika and Okoronkwo (2009) posit that a study concluded recently have shown several indicators of variables that increase greenhouse gases, which is the major causes of climate change are very common and at high volume in the country. What is worrisome is the low level of awareness about climate change or global warming in Nigeria.

The study on climate change and perception of Nigerian revealed that about 250 million people in Africa would be exposed to increased water stress due to climate change by 2020 while yields from rain-fed agriculture could be reduced by up to 50 percent. The study further revealed that in Nigeria:

- Awareness of climate change is low
- Most Nigerians associated climate change with weather.
- Most Nigerians do not connect local issues such as desertification, coastal flooding, gully erosion and urbanization to climate change
- There is little evidence of Nigerian taking substantive steps to adapt to the effect of climate change.
- Most Nigerians are not empowered to address environmental issues and responsibility for dealing with those problems is often attributed to the government
- Nigerians want practical, local information that is grounded in local examples of how to address environmental challenges they face.

Lack of awareness of climate change by most Nigerians is largely due to dearth of information and the government insensitivity to this-all important topical issue. This poses a challenge to library and information workers not only to collect relevant resources on climate change but also collaborate with other media to disseminate information about the problem of global warming. A media forum held on the 27<sup>th</sup> of May, 2008; at Abuja recognized the important role of the media in all developmental initiatives. Effective information dissemination and networking is no doubt enhances people's knowledge based for proactive engagement on climate change and its effects, and creates a sound formulation and action on climate change adaptation (Building Nigerian's Response to climate change, 2008). That the National House of representative has for the first time set up a standing committee on climate change to bring the issue to the front burners is a clear portrayal of insensitivity to this world's threatening problem (Nzeshi, 2009).

### **The Way Forward**

Climate change is an issue that cannot be solved overnight, or with any one policy. It is an intergenerational problem which needs to be addressed by ensuring that all policies which impact on how we live on this planet takes climate change seriously into account. This requires acting with a sense of urgency. The starting point for action and political leadership is recognition on the part of governments that they are confronted by what may be the gravest threat ever to have faced humanity.

As a priority, the world needs a binding international agreement to cut greenhouse gas emissions across a long time horizon. The developing countries have to be party to that agreement to make commitments to reduce emissions. Any multilateral agreement without quantitative commitments from developing countries will lack credibility in terms of climate change mitigation. At the same time, such agreement should incorporate provisions for finance and technology transfer from the rich nations that bear historic responsibility for climate change. The issue of climate change adaptation should also be addressed through international cooperation. Governments should make provision for national carbon budgets. Carbon budgeting backed by radical energy policy reforms and government action to change incentives structures for customers and investors is the foundation for effective climate change mitigation (Human Developing Report 2007/2008).

In a tropical climate, it is excessive heat and dampness that pose a threat to library collections and huge sums of money is being spent on air-conditioning to prevent the decay of library collections which is caused by mould and heat. Library buildings should be constructed using modern technology with excellent systems to cope for the benefit of preserving library collections equipment and personnel.

- Libraries should include global warming in user-education programs. During orientation programme for fresh students in the Nigerian Universities, global warming should be one of the points of emphasis.
- Libraries should recycle their old papers, rather than resorting to burning or discarding them to avoid fossil being emitted to the atmosphere.
- Libraries should check weather alerts and warnings from the National Weather Service and disseminate information to help individuals, communities and business plan for and reduce the effects of extreme heat.
- Libraries and their management should ensure that their staff work in an air conditioned environment in order to avoid heat wave and stay healthy. This presupposes that all the necessary infrastructures should be in place.
- In time of power outages, staff should stay out of extremely hot office and take fresh air outside, take plenty of fluids, wear light clothing, e.t.c



- More pragmatic approach should be given to awareness campaign on global warming by the government both at Federal, State and local levels.
- Awareness campaign should be carried to schools, market places and motor parks with emphasis on the role of individuals at mitigating the effects of climate change.
- At school level, young people should be encouraged to be involved through formation of Climate Change Clubs, societies, etc.
- To further drive home the message on global warming, programmes should be regularly organized in both radio and television programmes in local languages of various ethnic groups in Nigeria.
- As part of the government's effort at combating global warming effects, environmental sanitation exercise which is observed monthly should be given legislative backing to achieve the much desired result.
- Climate Change should be include in the school curriculum and taught as a subject. This is to make the young people realize the implication of global warming early in life. (Eretan, 2009 and Natural Disasters and Weather Emergencies 2009).

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