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DR (Mrs) GBADEBO C.T — Pg 19 — Global warming my work

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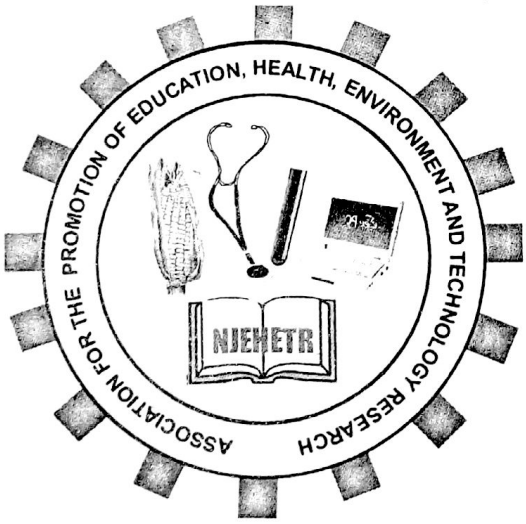

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GLOBAL WARMING: CAUSES, EFFECTS, AND CONTROL MEASURES.

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Abstract
Global warming which is an increase in the average temperature of the earth's atmosphere, especially a sustained increase that causes climatic change, 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 of the earth's surface. This increase in trapped heat, changes the climate and alters weather patterns, which may hasten species extinction, influence the length of seasons, and lead to more frequent and severe storms and increase in the range of disease vectors. This paper explores Global Warming: Causes, Effects, and Control Measures. It discusses causes of global warming, the physical, ecological social and economic effect of global warming on the environment, food supply and health of citizens. It focuses on the Nigerian situation concerning global warming and highlighted some control measures that can be applied to limit or eradicate global warming. The researcher is of the opinion that everyone in the society should put up conscious effort to find lasting solution to global warming, as it is believed that developing an aggressive plan of action can help reduce its negative impact. The following recommendations were made among others. There should be a change in peoples lifestyle to minimize the amount of green house gasses emitted into the air through application of measures such as afforestation,, reduced deforestation, carpooling, walking, use of fuel efficient vehicles and aircrafts alongside mass transportation and non-motorised means of transport, discreet use of television, computer, light bulbs, recycling items, e.t.c and there should be awareness creation in the society by the government to reinforce the need to check global warming. This paper would be beneficial to the stakeholders, manufacturers automobile engineers, individuals, the society and the government in their search of strategies to stop / reduce global warming and its hazardous effects.

Introduction

Global warming is defined as an increase in the average temperature of the earth's atmosphere specially a sustained increase that causes climatic changes. (Princeton, 2011) Global warming is sometimes known as anthropogenic global warming, climate change, or the greenhouse effect. Global warming refers solely to the fact that the Earth's atmosphere is warming near its surface. According to Odjugo, (2011) the ongoing global warming has taken about four decades without reversing. The human activities that cause climate change include transportation, industrialization, urbanization, burning of fossil fuel, agriculture, water pollution, changes in land cover and deforestation among others. While some of these factors

(industrialization, transportation, burning of fossil fuel, etc) emit greenhouse gases (GHGs) into the atmosphere, others, such as deforestation and water pollution reduce the rate of carbon sink thereby enhancing greenhouse gases concentration in the atmosphere. The concentrated greenhouse gases in the atmosphere has two basic implications. It not only depletes the ozone layer thereby allowing more solar radiation into the earth's surface, it also traps the outgoing heat from the earth's surface. The greenhouse gases include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), chlorofluorocarbons (CFCs) and sulphurhexafluoride (SF6). (Odjugo,2011). The current warming of the earth's climate is caused by anthropogenic forces (influence of humans) as is now evident from observations of increases in global average air and ocean temperatures.. A warmer Earth may lead to changes in rainfall patterns, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans. (World Almanac Books, 2000.) If the steady rise in global average temperature in recent decades, which experts believe is largely caused by man-made greenhouse gas emissions continues upwards, and unchecked for a prolong period, it will attain a new climatic status- warm or hot climate, with its effects on man and the ecosystem. (news.bbc.co.uk/2/hi/science/nature/8314501.stm, 2011) It was also observed that climatic data from developed countries reveal significant change in many physical and biological systems in response to global warming. It is against this background that this paper discusses the causes, effects and control measures of global warming.

Concept of Global Warming

The term global warming is used to refer to the small yet significant increase in the average temperature of the Earth's surface as well as its projected continuation. (http://www.yourdictionary.com/global-warming, 2011). There is a theory that the world's average temperature is increasing due to the burning of fossil fuels and other forms of energy resulting in higher atmospheric concentrations of gases such as carbon dioxide. The increase in the Earth's temperature is also said to be caused by human activities, such as burning coal, oil and natural gas. This releases carbon dioxide, methane, and other greenhouse gases into the atmosphere. (www.pca.state.mn.us/gloss/glossary.cfm) Green house gasses emitted into the atmosphere are also known to contribute to global warming. Greenhouse gasses are gasses in the earth's atmosphere that collect heat and light from the sun. (carbon dioxide, water vapor, nitrous oxide, and methane). (www.the free dictionary.com/greenhouse, 2011). Although the greenhouse effect makes the earth able to have people living on it, with too many greenhouse gasses in the air, the earth's atmosphere will trap too much heat and the earth will get too hot. As a result people, animals, and plants would die because the heat would be too strong. They would die because there would be less food (plants like corn, wheat, and other vegetables and fruits). This would happen because the plants would not be able to take the heat. This would cause us to have less food to eat, but it would also limit the food that animals have. With less food, like grass, for the animals that we need to survive (like cows) we would even have less food. Gradually, people, plants, and animals would all die of hunger.

Causes of Global Warming

1. Green House Effect: One of the first things scientists learned is that there are several greenhouse gases responsible for warming, and humans emit them in a variety of ways. Most come from the combustion of fossil fuels in cars, factories and electricity production. The gas responsible for the most warming is carbon dioxide {CO2}. It is obvious that CO2 is the most important contributor to the Green House Gases. It contributed 76.7% of the Green House Gases. Its annual emissions grew by about 80% between 1970 and 2004.(Odjugo,2010) Other contributors include methane released from landfills and agriculture (especially from the digestive systems of grazing animals), nitrous oxide from fertilizers, gases used for refrigeration and industrial processes, and the loss of forests that would otherwise store CO2.. Different greenhouse gases have very different heat-trapping abilities. Some of them can even trap more heat than CO2. A molecule of methane produces more than 20 times the warming of a molecule of CO2. Nitrous oxide is 300 times more powerful than CO2. Other gases, such as chlorofluorocarbons (which have been banned in much of the world because they also degrade the ozone layer), have heat-trapping potential thousands of times greater than CO2. But because their concentrations are much lower than CO2, none of these gases adds as much warmth to the atmosphere as CO2 does. (National Geographic Society, 2011.).

2. Human Activities: Intergovernmental Panel on Climate Change.(IPCC, 2001) stated that human influences will continue to change atmospheric composition throughout the 21st century" Greenhouse gases such as carbon dioxide accumulate in the atmosphere and trap heat that normally would exit into outer space. While many greenhouse gases occur naturally and are needed to create the greenhouse effect that keeps the Earth warm enough to support life, human use of fossil fuels is the main source of excess greenhouse gases. By driving cars, using electricity from coal-fired power plants, or heating our homes with oil or natural gas, we release carbon dioxide and other heat trapping gases into the atmosphere. (West,L,2011).

3. Deforestation: This means cutting down of trees. Plants collect the carbondioxide (CO2) that we breathe out, and they give back oxygen(O2) that we breathe in. With less trees and other plants, such as algae, there is less air for us, and more greenhouse gases are sent into the air as we breath out carbondioxide. This means that it is very important to protect our trees to stop the greenhouse effect, and also so we can breathe and live. (EPA, 2001)

4. Electrical pollution: In most cases, fossil fuels are burned to create electricity. Fossil fuels are made of dead plants and animals. Some examples of fossil fuels are oil and petroleum. Many pollutants (chemicals that pollute the air, water, and land) are sent into the air when fossil fuels are burned.

5. Garbage Burning: When we throw our garbage away, the garbage goes to landfills which are sometimes burned. This sends an enormous amount of greenhouse gasses into the air and makes global warming worse. The CO2, collects light and heat (radiant energy), produced by the sun, and this makes the earth warmer.

6. Solar Activity: The heat and light from the sun is produced in the center of the sun. The sun has layers just like the earth. The heat escapes out of this layer to the next layer, the radioactive zone. Gradually, the heat and light will pass through the convection zone at a temperature of around 2,000,000F. When it gets to the surface, the temperature is about 10,000F. Finally, the heat and light is sent into space. When you pollute, you send chemicals into the air that destroy our atmosphere, so more heat and light cannot escape from the earth's atmosphere. (EPA, 2001)

7. Some other examples of using energy and polluting the air are: Turning on a light, watching T.V, 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. When you do these things, you are causing more greenhouse gasses to be sent into the air.

Effects / consequences of global warming

As the concentration of greenhouse gases grows, more heat is trapped in the atmosphere and less escapes back into space. This increase in trapped heat changes the climate and alters weather patterns, which may hasten species extinction, influence the length of seasons, cause coastal flooding, lead to more frequent and severe storms and increases the range of disease vectors.

Effects of global warming on the environment?

The effects, or impacts, of climate change may be physical, ecological, social or economic. Global warming makes the sea rise, which make the water cover many low land isl ands and causes many of the plants, animals, and people on islands to die. When they die, the animals lose a source of food, along with their habitat. When the plants and animals die, people lose plant food and animal food, and may also lose their homes. Warm water as a result of global warming, is harming and killing algae in the ocean. This green algae is food to many consumers in the ocean. e.g small fish, crabs, whales, and many other animals. Fewer algae is a problem because there is less food for humans and many animals in the sea. It is also destroying many huge forests. The pollution that causes global warming is linked to acid rain. Global warming is also causing many more fires that wipe out whole forests. Evidence of observed climate change

includes the instrumental temperature record, rising sea levels, and decreased snow cover in the Northern Hemisphere.

Physical impacts of climate change: This section describes some physical impacts of climate change. For some of these physical impacts, their effect on social and economic systems are also described.

Effects on weather: Intergovernmental Panel on Climate Change (IPCC) (2007) predicted that in the future, over most land areas, the frequency of warm spells or heat waves would very likely increase. Other likely changes are: drought, intense tropical cyclone activity(windstorm & tornado), and extreme high sea level.

Increased freshwater flow: Much of the increase is in areas which already experience high rainfall. In Latin America, changes in precipitation patterns and the disappearance of glaciers will significantly affect water availability for human consumption, agriculture, and energy production

Oceans: Global warming is projected to have a number of effects on the oceans. Ongoing effects include rising sea levels due to thermal expansion and melting of glaciers and ice sheets, and warming of the ocean surface, leading to increased temperature stratification. Other possible effects include large-scale changes in ocean circulation. The oceans serve as a sink for carbon dioxide, taking up much that would otherwise remain in the atmosphere, but as the temperature of the oceans increases, they become less able to absorb excess CO2. Thus, increased levels of CO2 have led to ocean acidification as dissolving CO2 in seawater increases the hydrogen ion (H+) concentration in the ocean, and thus decreases ocean PH. The amount of oxygen dissolved in the oceans may decline, with adverse consequences for ocean life.

Effect on Social systems Food supply: Climate change will impact agriculture and food production around the world due to: the effects of elevated CO2 in the atmosphere, higher temperatures, altered precipitation and transpiration regimes, increase frequency of extreme events, and modified weed, pest, and pathogen pressure (Benjamin, 2010). In general, low-latitude areas are at most risk of having decreased crop yields (Schneider, Semenov, Patwardhan, Burton, Magadza, Oppenheimer,, Pittock,, Rahman,, Smith,, & Suarez, 2007).

Health: International Panel on Climate Change IPCC(2007) projected that:
The health status of millions of people would be affected through, for example, increases in malnutrition; increased deaths, diseases and injury due to extreme weather events; increased burden of diarrhea diseases; increased frequency of cardio-respiratory diseases due to high concentrations of ground-level ozone in urban areas related to climate change; and altered spatial distribution of some infectious diseases.

Specific health impacts
Malnutrition: With high confidence, Confalonieri, Menne, Akhtar, Ebi, Hauengue, Kovats, Revich and Woodward (2007) projected that malnutrition would increase due to climate change. Drought reduces variety in diets and reduces overall consumption. This can lead to micronutrient deficiencies.

Floods and weather disasters:. Major storm and flood disasters have occurred in the last two decades. Vulnerability to weather disasters depends on the attributes of the person at risk, including where they live and their age, as well as other social and environmental factors.

Drought: This is a period of dry weather. The effects of drought on health include deaths, malnutrition, infectious diseases and respiratory diseases Countries within the "Meningitis Belt" in semi-arid sub-Saharan Africa experience the highest endemic and epidemic frequency of meningococcal meningitis in Africa,

Fires: In some regions, changes in temperature and precipitation are projected to increase the frequency and severity of fire events (Confalonieri et al., 2007). Forest and bush fires cause burns, damage from smoke inhalation and other injuries.

Malaria: The spatial distribution, intensity of transmission, and seasonality of malaria is influenced by climate in Sub-saharan Africa (Confalonieri et al.,2007). Rainfall can be a limiting factor for mosquito populations and there is some evidence of reductions in transmission associated with decadal decreases in rainfall.

Diarrhoeal diseases: With medium confidence, Confalonieri et al. (2007) concluded that climate change would increase the burden of diarrhoeal diseases. Childhood mortality due to diarrhoea in low-income countries, especially in Sub-Saharan Africa, remains high (Confalonieri et al., 2007). Some studies have found that higher temperature was strongly associated with increased episodes of diarrhea disease in adults and children in Peru.

Ground-level ozone

Ozone in smog is formed through chemical reactions involving nitrogen oxides and other compounds. Exposure to elevated concentrations of ozone is associated with increased hospital admissions for pneumonia, chronic obstructive pulmonary disease, asthma, allergic rhinitis and other respiratory diseases, and with premature mortality. Background levels of ground-level ozone have risen since pre-industrial times because of increasing emissions of methane, carbon monoxide and nitrogen oxides (Jacobson, 2009).

Migration and conflict: With medium confidence, it was predicted that stresses such as increased drought, water shortages, riverine and coastal flooding would lead, in some cases, to relocation within or between countries. This might have the effect of exacerbating conflicts, and possibly impose migration pressures.(Schneider et al, 2007)

The Nigerian Situation Concerning Global Warming

Odjugo, (2011) observed that industries, water pollution and agricultural productions to a large extent and vehicular fumes to a lesser degree are the major sources of greenhouse gas emissions in the developed world. Nigeria like most developing countries is not an industrialized nation so automobiles are therefore the major sources of air pollution in the urban areas. This is because most vehicles imported into the country are either fairly used or old ones which emit lot of carbons into the atmosphere.. Most commercial motorcycle riders in Nigeria usually add engine oil to the petrol, which automatically turns the petrol into gasoline. Although gasoline burns slower than petrol, it emits more carbons. The motorcycle riders therefore save fuel at the expense of the environment.

He further reiterated that the failure of the Power Holding Company of Nigeria (PHCN) to provide efficient and effective electricity has resulted in majority of Nigerians buying generators to provide individual thermal electricity, and these do not only constitute noise pollution but also emit a lot of carbons into the atmosphere. Gas flaring(burning) is another source of greenhouse gas emission in Nigeria. Nigeria is the largest gas flaring nation in the world. She flares more than 70% of her natural gas.

Odjugo, (2010) Explained that recent studies (Chindo and Nyelong, 2005; Nwafor, 2007;)show evidence of increase in Temperature in Nigeria. The increase become so rapid since the early 1970s. The mean temperature between 1901 and 1938 was 26.04OC while the mean between 1971 and 2008 was 27.83. This indicates a mean increase of 1.78 ^{O}C for the two climatic periods. The result is a clear indication that Nigeria is experiencing global warming at the rate higher than the global mean temperatures. Should this trend continue unattended to, Nigeria may experience between the middle (2.5^{O}C) and high (4.5^{O}C) risk temperature increase by the year 2100. He further reiterated that the increase in temperature is more in the northern part of the country than in the southern part. Another indicator is the increasing frequency and intensity of unusual or extreme weather related events such as erratic rainfall pattern, floods and sea level rise among others. Available evidence also shows that climate change has impacted on agriculture and health in Nigeria. (Odjugo, 2010; Adefolalu, 2007). The Nigerian people themselves face a

geographical pincer threat from desertification in the north and coastal erosion in the south. Through a combination of overgrazing, abuse of woodland for fuel and increasingly unreliable rainfall, the Sahara is advancing at an estimated rate of 600 metres per annum. Over 55 million people in 10 northern states could be affected.

Aaron Sayne (2011) explained that Nigeria's climate likely to see growing shifts in temperature, rainfall, storms, and sea levels throughout the twenty-first century. He further reiterated that Nigeria may lose as much as 600,000 hectares of trees each year to firewood and logging.

Deforestation in Nigeria: The country's broader forest cover was estimated at just over 12% in 2005, being depleted at a rate of 3.3% per annum. The main cause is the demand for wood fuel. In the absence of affordable alternatives, charcoal is popular even in the cities, boosting its uncontrolled production.

Global Warming Control Measures

At the core of most proposals is the reduction of greenhouse gas emissions through reducing energy waste and switching to cleaner energy sources. Frequently discussed energy conservation methods include increasing the fuel efficiency of vehicles, individual-lifestyle changes and changing business practices. Newly developed technologies and currently available technologies including renewable energy such as solar power,tidal and ocean energy, geothermal power, and wind power. (DeWeerdt, 2007).

On transport, there should be more fuel-efficient vehicles, bio-fuels, modal shift from road transportation to rail and public transport systems, non-motorised transport in relatively short distances (cycling and walking), land-use and transport planning, higher efficiency aircrafts, advanced and hybrid vehicles with more powerful and reliable batteries.

Adaptation: which involves acting to tolerate the effects of global warming .In the north, relatively modest techniques are likely to be appropriate to adapt to desertification. Such measures will include tree planting, the use of alternative fuels such as biogas, water harvesting and improved soil management. At the end of 2009, some initial steps were taken to establish a multi-stakeholder body to prepare a National Adaptation Strategy and Plan of Action.

Mitigation: Climate change mitigation is action to decrease the intensity of radiative forcing in order to reduce the potential effects of global warming.

Most often, climate change mitigation scenarios involve reductions in the concentrations of greenhouse gases, either by reducing their sources or by increasing their sinks. (Trevor, 2010)The United Nations defines mitigation in the context of climate change, as a human intervention to reduce the sources or enhance the sinks of greenhouse gases.(UN News Centre, 2007) Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to renewable energy (solar energy or wind power), improving the insulation of buildings, and expanding forests and other "sinks" to remove greater amounts of carbon dioxide from the atmosphere. The Stern Review identifies several ways of mitigating climate change. These include reducing demand for emissions-intensive goods and services, increasing efficiency gains, increasing use and development of low-carbon technologies, and reducing fossil fuel emissions.

Population control: Various organizations promote population control as a means for mitigating global warming. Proposed measures include improving access to family planning and reproductive health care and information, reducing natalistic (birthrate) politics, public education about the consequences of continued population growth, and improving access of women to education and economic opportunities.(http://en.wikipedia.org/wiki/Climate_change_mitigation, 2011)

Improving Electrical design of buildings

Architectural design of building should be such that have efficient lighting and day- lighting, more efficient electrical appliances and heating and cooling devices, improved cooking stores, improved insulation, passive and active solar design for heating and cooling. Industries should practice more efficient use of

electrical equipment, heat and power recovery, material recycling and substitution, have a better control of non-CO2 gas emissions and a wide array of process-specific technologies.

Government Intervention

Although it's likely too late to repair the damage already caused by global warming, it is believed that developing an aggressive plan of action can help reduce its negative impact.

The government is doing many things to help stop global warming:

Nigeria's First National Communication on Climate Change came out in 2003, and President Olusegun Obasanjo set up a Special Climate Change Unit in the Ministry of Environment to manage the issue. The ministry's proposed 2011 budget shows climate change–related capital projects worth about $20 million. Officials also say a draft National Climate Change Policy document is in the offing. (Aaron, 2011) In the United States, governmental agencies have developed initiatives to slow the growth of emissions, strengthen scientific research into the issue, and promote international cooperation while implementing new climate change policies. Advanced countries like the U.S.A, Canada, United Kingdom and Japan etc, made a law called The Clean Air Act so there is less air pollution.The Clean Air Act enforces laws that says that you may not put a certain amount of pollutants in the air. Hairspray and some other products, like foam cups, had this problem. Making and using these products let out too much volatile organic compounds (VOC's), ozone-destroying chemicals (chlorofluorocarbons (CFC's), and related chemicals (such as CO2) into the air. Now, almost all of these products have a label on them telling people what this product can do to the environment and many people. .The Clean Air Act has also made car companies change some of the things inside of the cars as cars make more than half of the world's smog (visible pollution in the air), and many things that cars need to move and heat up make even more pollution.

Cars, buses, and trucks are responsible for over 50% of dangerous chemicals let into the air. Some of these chemicals can cause cancer, birth defects, trouble breathing, brain and nerve damage, lung injures, and burning eyes. Some of the pollutants are so harmful that they can even cause death.("http://en.wikipedia.org/wiki/Climate_change_mitigation)

Individual Intervention

Thirty (30) Things to do to Stop Global Warming

There is also a widespread campaign to help inform individuals of the steps they can take to reduce personal contributions to greenhouse gas emissions. According to global **warming facts. info /50tips .htm/(2011) and www. jjay. cuny.edu/50things,(2011)** Here is a list of 30 simple things that everyone can do in order to fight against and reduce the Global Warming phenomenon: These are arranged alphabetically.

1. **Buy fresh foods instead of frozen:** Frozen foods uses 10 times more energy to produce, therefore buying fresh foods saves more energy than buying frozen.

2 **Buy locally grown and produced foods**: The average meal in each household travels 1,200 miles from the farm to your plate. Buying locally grown foods will save fuel and keep money in your community.

3. **Buy organic foods as much as possible**: Organic soils capture and store carbon dioxide at much higher levels than soils from conventional farms. If we grew all of our corn and soybeans organically, we'd remove 580 billion pounds of carbon dioxide from the atmosphere!

4. **Check your tires weekly to make sure they're properly inflated:** Proper tire inflation can improve gas mileage by more than 3%. Since every gallon of gasoline saved keeps 20 pounds of carbon dioxide out of the atmosphere, every increase in fuel efficiency makes a difference!

5. **Choose products that come with little packaging and buy refills when you can:** You will also cut down on waste production and energy use. This is another help against global warming.

6. **Cover your pots while cooking**: Doing so can save a lot of the energy needed for preparing the dish. Even better are pressure cookers and steamers: they can save around 70%!

7. **Defrost old fridges and freezers regularly**: Even better is to replace them with newer models, which all have automatic defrost cycles and are generally up to two times more energy-efficient than their predecessors.

8. **Do not leave appliances on standby**: A TV set that's switched on for 3 hours a day (the average time Europeans spend watching TV) and in standby mode during the remaining 21 hours uses about 40% of its energy in standby mode.

9. **Don't let heat escape from your house over a long period:** When airing your house, open the windows for only a few minutes. If you leave a small opening all day long, the energy needed to keep it warm inside during six cold months (10ºC or less outside temperature) would result in almost 1 ton of CO2 emissions.

10. **Don't leave an empty roof rack on you car:** This can increase fuel consumption and CO2 emissions by up to 10% due to wind resistance and the extra weight. Removing it is a better idea.

11. **Drive carefully and do not waste fuel**: You can reduce CO2 emissions by re-adjusting your driving style. Choose proper gears, do not abuse the gas pedal, use the engine brake instead of the pedal brake when possible and turn off your engine when your vehicle is motionless for more than one minute.

12. **Eat less meat**: Methane is the second most significant greenhouse gas and cows are one of the greatest methane emitters. Their grassy diet and multiple stomachs cause them to produce methane, which they exhale with every breath.

13. **Fly less:** Air travel produces large amounts of emissions so reducing how much you fly by even one or two trips a year can reduce your emissions significantly. You can also offset your air travel carbon emissions by investing in renewable energy projects.

14. **Keep your car tuned up**: Regular maintenance helps improve fuel efficiency and reduces emissions. When just 1% of car owners properly maintain their cars, nearly a billion pounds of carbon dioxide are kept out of the atmosphere.

15. **Move your fridge and freezer**: Placing them next to the cooker or boiler consumes much more energy than if they were standing on their own. For example, if you put them in a hot cellar room where the room temperature is 30-35ºC, energy use is almost double and causes an extra 160kg of CO2 emissions for fridges per year and 320kg for freezers.

16. **Plant a tree**: A single tree will absorb one ton of carbon dioxide over its Life time. Shade provided by trees can also reduce your air conditioning bill by 10 to 15%.

17. **Protect and conserve forest worldwide**: Forests play a critical role in global warming: they store carbon. When forests are burned or cut down, their stored carbon is release into the atmosphere - deforestation now accounts for about 20% of carbon dioxide emissions each year.

18. **Recycle your organic waste**: Around 3% of the greenhouse gas emissions through the methane is released by decomposing bio-degradable waste. By recycling organic waste or composting it if you have a garden, you can help eliminate this problem! You can save 2,400 pounds of carbon dioxide a year by recycling half of the waste your household generates.

19. **Reduce waste**: Most products we buy cause greenhouse gas emissions in one way or the another, e.g. during production and distribution. By taking your lunch in a reusable lunch box instead of a disposable one, you save the energy needed to produce new lunch boxes.

20. **Reduce the number of miles you drive by walking, biking, carpooling or taking mass transit wherever possible:** Avoiding just 10 miles of driving every week would eliminate about 500 pounds of carbon dioxide emissions a year! Look for transit options in your area.

21. **Replace a regular incandescent light bulb with a compact fluorescent light bulb (cfl)**: CFLs uses 60% less energy than a regular bulb. This simple switch will save about 300 pounds of carbon dioxide a year.

22. **Re-use your shopping bag:** When shopping, it saves energy and waste to use a reusable bag instead of accepting a disposable one in each shop. Waste not only discharges CO2 and methane into the atmosphere, it can also pollute the air, groundwater and soil.

23. **Seek out and support local farmers markets:** They reduce the amount of energy required to grow and transport the food to you by one fifth. Seek farmer's markets in your area, and go for them.

24. **Start a car pool with your coworkers or classmates:** Sharing a ride with someone just 2 days a week will reduce your carbon dioxide emissions by 1,590 pounds a year.

25. **Try car sharing**: Need a car but don't want to buy one? Community car sharing organizations provide access to a car and your membership fee covers gas, maintenance and insurance.

26. **Try telecommuting from home**: Telecommuting by working from home on a computer linked to the workplace via modem can help reduce the number of miles you drive every week drastically.

27. **Use the washing machine or dishwasher only when they are full:** If you need to use it when it is half full, then use the half-load or economy setting. There is also no need to set the temperatures high.

28. **Use less hot water**: It takes a lot of energy to heat water. You can use less hot water by installing a low flow showerhead (350 pounds of carbon dioxide saved per year) and washing your clothes in cold or warm water (500 pounds saved per year) instead of hot.

29. **Use a clothesline instead of a dryer whenever possible**: You can save 700 pounds of carbon dioxide when you air dry your Clothes for 6 months out of the year.

30. **When it is time for a new car, choose a more fuel efficient vehicle:** You can save 3,000 pounds of carbon dioxide every year if your new car gets only 3 miles per gallon more than your current one. (global warming facts. info /50tips .htm/,2011) and

Conclusion:

This paper observed that the increase in the Earth's temperature is said to be caused by human activities, such as burning coal, oil and natural gas. This releases carbon dioxide, methane, and other greenhouse gases into the atmosphere. The human activities that cause global warming are transportation, industrialization, urbanization, agriculture, deforestation, water pollution and burning of fossil fuel among others. These either emit greenhouse gases into the atmosphere or reduce the rate of carbon sinks. The impacts of global warming if left unchecked could lead to physical, ecological, social, health or economic hazard. This paper discusses some necessary control measures to reverse the impacts of global warming as appropriate measures are needed to reduce the rate of greenhouse gases emissions. These include increasing the fuel efficiency of vehicles, individual-lifestyle changes, changing business practices and

changes in human consumption patterns, In my opinion Fuel efficient vehicles and aircrafts alongside mass transportation and non-motorised means of transport to relatively short distances should be encouraged. While deforestation should be reduced, afforestation and forest management should be encouraged. This paper has suggested Carpooling, Planting trees and recycling, Change in lifestyle and being more careful in the use of electricity to reduce the emission of Green House Gasses and mitigate the effects of global warming as this will improve Nigeria's climate that is predicted to likely see growing shifts in temperature, rainfall, storms, and sea levels throughout the twenty-first century and also address climatic challenges that could throw already stressed resources such as land and water into even shorter supply. Moreover, adherence to these measures would prevent serious negative secondary effects, like sickness and hunger, fewer jobs, and poor economic growth, which in turn could open the door to more violence. Creating awareness among citizens by the local, state and federal government about global warming is an ideal that is necessary to help inform individuals of the steps they can take
to reduce personal contributions to greenhouse gas emissions. Mitigation potentials can only be achieved when adequate policies are in place and barriers removed. As a final point the review presented in this report should be interpreted as reflective of diverse intellectual approaches that characterizes the literature on global warming. This paper nevertheless concludes by a suggestion for continued research in this area with the intent of developing some theoretical rigor that will facilitate effective prevention programmes in global warming. This study will create awareness among Homemakers, citizens, stakeholders, manufacturers, engineers, Agriculturalists, farmers, scientists,e.t.c. about global warming and help them plan, implement and evaluate industrial and community –based efforts to reduce / stop global warming. Finally the study is expected to encourage policy makers to make recommendations that will encourage people in our societies to adopt socially responsible / healthy behaviours that will put lasting solution to global warming. The researcher is of the opinion that Global Warming is a dramatically urgent and serious problem. We don't need to wait for governments to find a solution for this problem: each individual can bring an important help, adopting a more responsible lifestyle: starting from little. It's the only reasonable way to save our planet, before it is too late.

Recommendations:

The following recommendations are made based on this study.

- Carpooling should be a constant practice to minimize the amount of greenhouse gases put into the air by cars. Riding busses, walking to school, and riding bikes to lower the amount of greenhouse gases in the air is necessary.
- Change in lifestyle: being more careful about leaving things turned on like the television, computer, and the lights. Spend more time outdoors.
- Planting trees and recycling also helps. If you recycle, less trash goes to the dump, and less trash gets burned. As a result, there will be fewer greenhouse gasses in our atmosphere.
- Watch what you buy. Many things, such as hairspray and deodorant, now are made to have less of an impact on the atmosphere. Less greenhouse gasses will rise into the air, and global warming will slow down.
- The local, state and federal government should intensify effort to minimize greehouse gas emissions by creating awareness among citizens about what to do or expect.
- **Join the virtual march**: The Stop Global Warming Virtual March is a non-political effort to bring people concerned about global warming together in one place.

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