

## Global Climate Change and Body Functions

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### INTRODUCTION

What Is Global Climate Change ? In 1896, a Swedish Chemist, Savante Arrhenius, predicted Global Warming. Global Climate or Global Warming, is a gradual process that threatens sea level elevations, crop failure and famine, global rainfall patterns, changes to plant and animal populations and serious health effects (Wang, 2005).

Climate is the temperature, humidity, precipitation, winds, radiation and other meteorological conditions characteristic of a locality or region over an extended period of time (Clarke 1966). Climate change is any long-term significant change in the 'average weather' – i.e., average temperature, precipitation and wind patterns - that a given region experiences (Archer et al. 2005) Global Warming, is the warming of the atmosphere near the earth's surface (Kasting et al 2009). And the Ozone layer depletion (Ozone hole) allows more harmful radiation to reach the earth's surface.

Global climate change or global warming is a very complex scientific issue. We use global warming and global climate change interchangeably because human activity negatively influence our atmosphere and climate, pollute and debilitate the normal body functions, through chemical, physical, biological or radioactive contaminants to the environment. Human activity causes dramatic rise in atmospheric concentrations of greenhouse gases (GHGs), i.e. water vapour, carbon dioxide, methane, nitrogen oxides, ozone and chlorofluorocarbons (CFCs). Human beings cannot control the climate or change it, but we can be the best protectors of the planet. Because, human health is intricately bound to weather, climate change has measurable impacts on health and general body functions.

We must therefore, adapt to those changes through *Legislative, Administrative, Institutional, Technological Educational, and Research related measures*. Unfortunately with the technological advancement of mankind, the same factors which are responsible for making life and the human race better, are also responsible for the degradation of the environment. But Who Are Humans? Humans are taxonomically, *Homo sapiens* or "wise man" with highly developed brain, capable of abstract reasoning, language, introspection, and problem solving; with erect body carriage and free hands, for manipulating objects to their benefits. Mitochondrial DNA and fossil evidence indicate that modern humans originated in Africa about 200,000 years ago (Human Origins Programs, 2010) and as of May, 2010, the population of humans was about 6.8 billion (World POP Clock Projection 2010). They influence their environment through science, philosophy, mythology and religion. Humans are the only species that *build fires, cook their food, clothe themselves and use numerous other technologies*, with insatiable greed for more. Man has been exposed to a more comfortable life and he wants more ( like "OLIVER TWIST"). Everything he needs to live a better and more comfortable life are there, but he is becoming greedy to the point of wanting more than what Mother Nature can afford. Consequently, in my *two articles* in *The Renaissance Newspaper* of Sunday 1<sup>st</sup> September 1974 and Sunday, 8<sup>th</sup> September 1974, "*What is the fate of God next Century*" and "*What Happens to God Next Century*" respectively, (as a Journalist Vacation Jobber with *The Renaissance* ), I categorically stated that with the rate at which some scientists were using their discoveries, to relegate the omnipotence and omniscience of God Almighty to the background, that God should not hesitate in

bringing to an automatic and drastic halt, any such moves by such scientists.

And for good health and normal body functions, we must slow down and watch our steps in everything we do; in energy utilization, daily living and waste generation pattern and disposal methods. A green living ideology should be the order of the day. This would drastically cut down on the impact of human activities on our climate and so guarantee the continuous existence of man. In so doing, we secure our climate, since a threat to the climate is a threat to the normal body functions and also a threat to our population.

### **Global Climate Change And The Human Health**

Global climate affects birth rates, and sperm counts, and causes outbreaks of pneumonia, influenza and bronchitis, and other morbidity effects linked to pollen concentrations and high pollen levels. Its effect also varies with age, sex and race and has high risk factors like alcoholism, humidity, living on higher floor of buildings, and the use of tranquilizers. It also has low risk factors like air-conditioning, frequent exercising, consumption of fluids and living in shaded residences and adaptation/ acclimatization. Cold dry air in winter leads to excessive dehydration or nasal passages and respiratory tract and increased chance of microbial and viral infection.

#### ***Human activity is the main cause of global warming through:***

Air pollution: e.g. carbon monoxide, sulphur dioxide, chlorofluorocarbons (CFCs), and nitrogen oxides produced by industry and motor vehicles (*see diagrams*). Ozone and smog from nitrogen oxides and hydrocarbons and the burning of candles daily, cause cancer.

Water pollution: e.g. organic and inorganic chemical, heavy metals, petrochemicals, chloroform, bacteria, thermal pollution and the depletion of dissolved oxygen into oceans and inland bodies of water, e.g. Tsunami, Pakistan Floods, Ogunpa Floods at Ibadan, Marina Oceanic overflow, etc.

Soil contamination: e.g. spills or underground storage tank leakage release, like hydrocarbons, heavy metals, MTBE, herbicides, pesticides and chlorinated hydrocarbons. e.g. B.P. oil spill in Mexican Coasts.

Radioactive Contamination: e.g. atomic physics, radio, television, X-rays, MRI, etc. on industrial and factory workers and inhabitants of Hiroshima and Nagasaki in Japan. NB: Regular heat from Laptops on your laps, heats up your testes and can cause cancer. Cell phones in breast pocket or your side trouser pockets may be inviting heart problem or prostate cancer respectively; and regular use of ear phones may cause deafness.

**Noise Pollution:** e.g. roadway noise (especially Tukee-Tukee bus loudspeakers), aircraft noise (especially for those living near the airport), industrial noise of high-test production), as well as high-intensity sonar and musical traders advertising outfit, could prove harmful to health.

**Light pollution:** eg. light trespass, over-illumination and astronomical interference, found in some factory and industrial lighting, are dangerous to health.

**Visual Pollution:** Involves over-head power lines, highway billboards, scarred landforms (as from strip mining), open storage of junk or municipal solid waste, (*see diagrams*).

### **Global Warming Effects of Pollutants on Human Health**

Pollutants cause diseases, like cancer, lupus, immune diseases, allergies, and asthma. Radiation causes increased incidence of cancer and mortality worldwide. Bad air quality kills. Ozone pollution causes sore throat, inflammation, chest pain and congestion. Oil Spills cause skin irritations and rashes. Noise pollution induces hearing loss, high blood pressure, stress and sleep disturbance. Contamination by pollution damages the brain and central nervous system, causing it to shrink in size and ability.

### **Man's Natural Adaptations to Global Climate Change**

Global climate change significantly affects the tint of our skin, size of our noses, and other physical traits and their functions, e.g. the whites apparently have bigger brains and therefore more intelligent. Skin colour is due to the level of melanin, a dark pigment in the outer layer of the skin. Carotene imparts a yellow tint quality. The Equator, favours dark, melanin-rich skin, which protects the individual from absorbing harmful ultraviolet rays, although some must penetrate the skin to produce vitamin D. Pale skin exists at higher latitude where sunlight is less intense. Dark skin, just like dark (black) cloth, absorbs more heat from the sun than the lighter skin. Dark skin is also visually deceitful in low intensity light environment. Forest dwellers have darker complexion. The colour of our eyes is also determined by melanin. Dark eyes have sufficient melanin and are highly favoured in global climatic change, unlike blue eyes that can only see further in dim light.

Epicanthic folds (fatty tissue) among Chinese, Japanese, Eskimos and other Mongoloid descent, insulate the eye against freezing, and also provide additional shield against glare from snow and ice from harsh global climate change.

A series of wet, mucus-lined air chambers in our nose, "conditions" inhaled air before it reaches the

throat and the delicate air sacs of the lungs, warming it to about 95°F and raising the relative humidity to 95%. Our nose modifications include: Larger noses with more mucus lining for cold climates or hot dry climates. Flattened noses, for global change with frostbite in frigid environments. Long and narrow noses in arid regions of global climate change. Large sized people whose extra mass tend to facilitate heat retention inhabit colder climates.

### **Global Climate Effects of Heat and Cold on the Human Body:**

Human health, energy and comfort are affected significantly by climate. Extremes of hot and cold climates claim a lot of lives every year. Heat causes “excessive aggressiveness”, loss of energy and the loss of the ability to concentrate, and if continuous can cause heat exhaustion and heat stroke or even death. But cold climate, while it depresses the body’s immune system, causing flu, because cold drives people indoors (where microbes spread easily), it however favours intellectual concentration.

Some disease bearing organisms flourish in heat and humidity, e.g. malaria, yellow fever and dengue, etc. and the fertility rate of women in Bombay, India drops by more than 50% during the monsoon season. In U.S.A the fertility is lowest during the winter.

### **Body Systems and Global Climate Change**

A. **Your skin:** The skin is a tough resilient cushion that acts as a barrier against germs; protects the tissues underneath, and helps to regulate the body temperature, and gets rid of the wastes through the sweat glands.

When it is hot, glands in the skin secrete sweat and the evaporation causes cooling. When it is cold, constriction of the blood vessels in the skin cuts down the flow of blood near the body surface and helps to reduce heat loss. The skin also has five different kinds of sensations such as pain, cold, heat, pressure and contact, to monitor global climate change.

Environmental temperature can rise above 50 degrees centigrade resulting in all kinds of illnesses, *and it will appear as living in hell*. And hot weather comes with a lot of implications. Depletion of the ozone layer can be the direct result of atmospheric change. The cloud, no longer absorbs the solar radiation, hence, the ultra-violet rays from the sun come direct on the earth. My Research Team, is in touch with the United Nations Agency, so as to work out plans to further explore the problems of Ozone Layer Depletion and Global Warming and thus help to reduce excessive sweating and other ill-effects from heat wave.

*THE OZONE PARADOX*, shows that while Ozone, O<sub>3</sub>, is regarded as the life-saving shield, and this noxious pollutant in the stratosphere where it belongs, is indeed a lifesaver. *Up high, where Ozone is needed, we destroy it. Down here, in the troposphere, where ozone is poisonous, we manufacture it!* We need to take ozone to the stratosphere to shield the sun rays, so as to shield us from the dangerous rays of the sun. *My Team maintains that this seemingly difficult transportation may be possible someday.*

B. **Respiratory System:** Global warming causes intense air pollution respiratory diseases, including: (a) *Obstructive:* Emphysema, bronchitis, asthma attacks (b) *Restrictive:* Fibrosis, sarcoidosis, alveolar damage, pleural effusion. (c) *Vascular:* Disease of pulmonary oedema. Pulmonary embolism, pulmonary hypertension. (d) *Infections:* Environmental and other “diseases”: pneumonia, tuberculosis, asbestosis, particulate pollutants. Coughing has medicinal value since it is the body’s main method to remove dust, mucus, saliva and other debris from the lungs. Inability to cough can lead to infection. However, regular exercises may help keep finer structures of the lungs clear from particulate matter, etc.

C. **Cardiovascular System:** Global warming might hurt your heart. At higher temperatures, we sweat to get rid of heat, during which blood is sent to the skin to effect the heat loss. In turn, the heart rate rises and blood pressure drops. That combination can be dangerous and it weakens the cardiovascular system. People suffering from heart problems are more vulnerable to increased temperatures, especially those living in already warm areas, as their cardiovascular system must work harder to keep their body cool. Hot temperatures increase the Ozone concentration, which can damage people’s lung tissue and cause complications for asthma patients and those with lung diseases.

D. **Digestive System:** Arsenic in Bangladesh ground water could kill millions in Bangladesh. 50% of the population is at high risk of an early death from drinking ground water contaminated with toxic levels of arsenic (the Lancet, 2010). Arsenic, causes cancer and is toxic to the liver, skin, kidneys and the cardiovascular system. It is “the largest mass poisoning of a population in history”(WHO). Similarly, the use of plastic and rubber containers to microwave our food or to freeze our water for drinking (especially by our very busy executive wives and bachelors),

subsequently alters the food or the water quality and simply means taking *dioxine* that causes breast cancer and prostate cancer.

- E. **Renal System** “Global Warming can give you kidney stones”, and climate change is the ‘biggest global health threat of the 21<sup>st</sup> century’ (Orson, 2010). Extreme hot weather induces heat-related conditions including hypothermia and heat stress and it places stress on the kidneys.
- F. **Endocrine System:** To respond adequately to environmental stress, *Endocrine Disrupting Chemicals* interfere with adaptations to increased stress situations through the thyroid, sex steroid, and glucocorticosteroid systems. In adults, hormones mainly regulate ongoing physiological processes. In the fetus, they affect the entire development of organs as well as lifelong hormonal “set-points”.
- G. **Reproductive System:** The success of humans to populate the planet earth has been dependent on the combination of the ability to reproduce successfully and to minimize loss of offspring through controlling and manipulating their own micro-environment. In contrast, reproduction in wildlife is threatened by environmental changes. We need to balance this ecosystem for prosterity.

#### **Precautions against Global Climate Change / Global warming**

1. Turn the water off while you brush your teeth;
2. Reduce car trips by combining errands;
3. Reuse your take-away coffee cups or get a travel mug;
4. Reuse plastic shopping bags or get canvas bags;
5. Turn off lights/switches when you leave the room;
6. Lower the thermostat on your water heater - most people have it set far hotter than the needs;
7. Change air filters and keep your air conditioners and furnace cleaned and turned;
8. Weather proof your windows in the winter;
9. Reduce, reuse, recycle;
10. In the winter, turn your thermostat down three degrees, and in the summer turn it up three degrees;
11. A leaky toilet can waste 200 gallons of water a day; therefore be sure your fixtures are tight;
12. Carpool whenever possible; e.g. use one big vehicle for a group, instead of each person in his/her vehicle;
13. Keep your car tires properly inflated and drive within the speed limit;

All these, we can easily perform if we really care; And, in Obama’s words, I tell you, “Yes, We Can!” And We Must!

#### **My Candid and Conclusive Advice:**

Always *Obey the Rules of Nature*, for the very good of others. In other words, *always do good*. Otherwise, if you are always bent on doing bad, then, in line with my own (*Professor[Sir] A.C. Ugwu’s*) popular saying:- “The Intended Victim May Become The Victor And The Expected Victor May Become The Victim”. *And so, let me unequivocally assure you all that, the dividend of the sacrifice you make for the sake of humanity, will turn around somehow, and you will equally benefit from that your sacrifice, merely because you are part of humanity. Trust God, Trust Nature.* And like I told the audience in my *Inaugural Lecture*, on Thursday, 16<sup>th</sup> August, 2007 at the University of Benin, “If you do not perspire, you will expire”. So let us all perspire together towards minimizing *global climate change*, for the sake of humanity, because true sweat is true joy, and we shall all be happy for our achievements in conserving the integrity of our environment. Otherwise, if we do not try, the effects will definitely compel us to expire before our time, and who is the loser? Your guess is as good as mine.

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