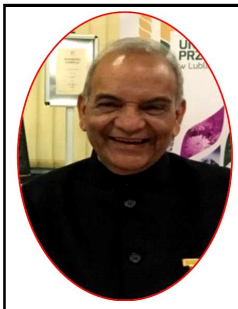

Dr. PD Gupta: Former, Director Grade Scientist, (Retired from Centre for Cellular and Molecular Biology, Hyderabad, India).

E. mail: pdg2000@hotmail.com

EXTREME WEATHER AND HUMAN HEALTH

P. D. GUPTA

A review article was published in "Journal of Cell and Tissue Research 16(2): 5705-5711 (2016)" entitled "Heat waves in non-conventional areas, climate change and disease load" by Bettencourt Pires, M.A., Vilemar Magalhães, J. and Gupta, P.D., which was read by 49,906, attracted discussions by 2144 eminent scientists, recommended by1115 and cited by 23 scientists till to day (14/01/24). After this scientists realized that extreme weather and global warming have long-term health consequences many articles were published by experts on the subject in various journals. It was because the lifestyle of human beings on this planet is guided by the local environment.

A warming climate can lead to more intense heat waves and increased evaporation. This worsens droughts, creating ideal conditions for wildfires. Warmer air holds more moisture, resulting in heavy rainfall, snowstorms, and flooding. Warming sea water can fuel stronger, more destructive hurri-canes. Warm, moist air over the oceans increases hurricane-related rainfall and flooding. Sea level rises caused by the expansion of water as it warms and melting ice and glaciers adding water to the oceans – can result in destructive storm surges and flooding.

The newly identified energy pollutants exert adverse influences on the health and the performances of humans all over the globe. Due to global warming, the thermal effects can cause the death of plants, animals, and even humans. Now many aspects of thermal stress disorder, such as heatstroke and dehydration, their causes, effects, management, and preventive measures are in focus.

As global warming intensifies storms, heat waves, floods, and droughts, these events are getting under people's skin and disrupting well-being in ways that persist long after the events themselves have subsided.

Cyclones can disrupt access of availability of quality water and food due to flooding. In the case of flooding, water is often contaminated with waste. During drought or/and extreme heat conditions water resources go dry due to shrinking water tables and groundwater water is not available for agriculture. Extreme climatic events also lead to the rapid death of crops and wildlife. The immediate effects of food or water shortages on the body are starvation, dehyd-ration and organ failure. But only recently have they begun documenting the effects of such shortages on the brain

Climate change and human adaptability: Extreme weather events are occurring more frequently and with greater intensity. Research linking health with real-time weather monitoring to assess exposure data and better characterize the health impacts of extreme weather events is increasingly necessary.

- Ø Stress of living through extreme and frequent climatic events in Puerto Rico in 2017, macaque changes associated with aging increasing their biological age by about two years,
- Ø Exposure to the Indian Ocean: Tsunami (2004) has brought changes in a stress response mechanism known as the hypothalamic-pituitary-adrenal (HPA) axis.
- Ø More surprising was that 14 years later, the chronic stress from the disaster resulted in their HPA axis showing signs of "burnout"; their body was unable to produce the extra stress hormones needed to mount an appropriate response to threats.
- Ø Developed water-sharing networks to mitigate the stress from water and food insecurity residents in three Puerto Rican communities dealt with severe power and water problems caused by Hurricane Maria.

Climate change is one of humanity's most pressing problems. If we do not tackle it now and allocate resources to communities appropriately, extreme climatic events such as Hurricane Otis will continue to compound stress, which changes our biology—and damages our health—in more ways and on longer time scales than we previously realized.