

Global Warming and Population Health

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Since the industrial revolution, the contribution of anthropogenic sources of greenhouse gases to the global environment has significantly increased. Greenhouse gases, including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), are accumulating in the atmosphere. These trends are largely attributed to human activities, primarily fossil-fuel combustion, some industrial processes, for example cement production and mining, changes in land use, and agricultural practices. The International Panel on Climate Change (IPCC), made up of more than 2,500 of the world's leading scientists, has recently concluded that human activity might have already begun to change the global climate, and in the absence of efforts to reduce greenhouse gases, the concentrations of these gases are expected to increase significantly throughout the next century (IPCC, 1996).

It is estimated that the continued accumulation of greenhouse gases at current rates will increase surface temperatures by about two degrees Celsius and sea level by around half a metre by the year 2100. The global weather patterns will also be altered, and there will be significantly more rain, snow, storms and flooding in some regions and droughts and bushfires in others. The sustained health of human populations requires the continued integrity of Earth's natural systems. The disturbance, by climate change, of physical systems such as weather patterns, sea level, and water supplies, and of ecosystems such as agroecosystems, and disease-vector habitats, would therefore pose huge risks to human health.

A recent report by the World Health Organization and several studies (Davis, 1997; Leaf, 1989; McMichael, Haines, Sloff, & Kovats, 1996; Patz, Epstein, Burke, & Balbus, 1995; Tong, Bi, Parton, Hobbs,

& McMichael, 1998), have examined the various possible impacts of climate change upon human health as follows:

- Increased illnesses and deaths from heat waves and air pollution. For example, it is predicted that by the year 2020, 700,000 avoidable deaths will occur annually as a result of additional exposure to air pollution under the business-as-usual forecasts when compared with the climate-change-control scenario. From 2000 to 2020, the cumulative impact of air pollution on population health could total eight million deaths globally.
- Increased outbreaks and spread of some infectious diseases. Climate-related increases in the geographic distribution (altitude and latitude) of the vector organisms of infectious diseases such as dengue fever and Ross River virus infection, and changes in the life-cycle dynamics of both vector and infective parasites would increase the potential transmission of many vector-borne diseases.
- Increased injuries and deaths from extreme weather events such as floods, storms and droughts.
- Increased outbreaks of some water-borne and food-borne diseases.
- Climate-related shortages in natural resources. For example, the availability of drinking water will be decreased from the effects of drought, flooding and rising seas.
- Decreases in agriculture, animal and fisheries productivity. Food shortages in Africa and some other areas will be worsened. Malnutrition will have significant and long-term impacts on human health.
- Damaging effects on ecosystems. Climate change may harm organisms on land and in the oceans that are an essential part of the life support systems for all life on Earth.

Heat waves, rising seas and weather patterns resulting from climate change are expected to affect the health of the present generation and future generations as well. As a new Commonwealth Greenhouse Office has just been established in the Department of the Environment to lead the drive to improve Australia's greenhouse performance we should look at the future

beyond the restricted view of environmental health as a local issue, and recognise the truly global reach of climate policies. As Dr Devra Davis, Director of the World Resources Institute, said, 'Regardless of how or when greenhouse gases alter climate, population health will benefit from reducing them now' (Davis, 1997).

References

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