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## ARTICLE

# Essay: Climate Change & Health

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## ABSTRACT

In this essay we will explore the furor, climate change exhibits on the health of populations, analysing the success of operations to mitigate its tyranny on the planet. After all, there is no sense in adversity if not to cultivate innovation.

Estimated to cause a quarter of a million additional deaths<sup>1</sup> per year between 2030 and 2050, climate change is an imminent threat. A phenomenon growing with vehement stride, it continues to menace the very facets of life we, as humanity, take pride in establishing: environment, economy and health. In this essay we will explore the furor, climate change exhibits on the health of populations, analysing the success of operations to mitigate its tyranny on the planet. After all, there is no sense in adversity if not to cultivate innovation.

To begin with the undisputable, baseline temperatures are rising. What is already an ageing population in many developed countries is further threatened by the growing incidence of heat waves, which contribute directly to deaths from cardiovascular and respiratory disease. For instance, the European heat wave in the summer of 2003 recorded more than 70 000 excess deaths.<sup>1</sup> High temperatures also raise ground-level ozone (a major component of smog) and particulate matter air pollution, exacerbating further cardiovascular and respiratory disease. Furthermore, extreme heat increases the levels of pollen and other aeroallergens, triggering increased hospital admissions for asthma. Whilst not part of the global climate change associated with the *troposphere*, the example of *stratospheric* ozone depletion accelerated by the widespread use of chlorofluorocarbon (CFC)s in aerosols and refrigerants in the past, illustrates exactly the reciprocation of damaging behaviour between industry and the planet. The reciprocation itself being

that the stripping away of the ozone barrier increases ultraviolet (UV) exposure on the Earth's surface, an occurrence that increases the incidence of skin cancer.

It is also impossible to ignore the more drastic means by which climate change attacks the health of populations: natural disasters. Whether it's hurricane Sandy directly claiming the lives of over 125 victims<sup>2</sup> in the United States of America, or the devastating secondary implications of cyclone Aila in triggering a widespread diarrhoea outbreak infecting over 7,000 people in Bangladesh,<sup>3</sup> climate change has often publicised the magnitude of its power on a global scale. It is important not only to consider the immediacy of the damage exhibited, but also its long-standing effects on developing nations, for whom healthcare infrastructure can be severely undermined.

On the topic of weather, increasingly variable rainfall patterns can diminish fresh water supplies. The lack of safe water then goes on to compromise hygiene, increasing the risk of water-borne diseases. Recognised by the United Nations General Assembly<sup>4</sup> as a basic human right, a compromised access to clean drinking water must be severely condemned. If such an adversity in itself cannot successfully convey the importance of assigning climate change its due alarm, then we must introspectively question what further manifestations we need to witness in order to believe its menace.

The eradication of once inescapable epidemics has become synonymous with development, a landmark of evolution



almost. Yet, climate change has tapped into this very domain and is slowly, but surely, reintroducing shadows believed to have been squelched in the past. This is where we address the severity of vector-borne diseases, for which climate change advantageously lengthens transmission seasons and widens geographic range. Already killing over 400 000 people per year<sup>1</sup> (and mainly children under age 5 in certain African countries), Anopheles-driven malaria poses an undeniable threat that can't afford to be accelerated by the nefarious influence of climate change. It is with similar reasoning that I emphasise the potential of the phenomenon to increase our exposure to the Aedes mosquito vector of dengue. Outbreaks of these tropical diseases may inundate healthcare infrastructure in low-income countries (LICs), dampening the burdens to communities for whom health setbacks can translate into a cycle of economic poverty.

On the topic of global damage distribution, it is imperative to acknowledge the larger toll of climate change on LICs. Severe weather events and changing rainfall trends are projected to cause declines in crop yields, threatening food production for a growing global population. The extent to which rising food prices will widen global economic inequality is unknown, but what is certain is the compromise on food security and, in the case of elevated atmospheric CO<sub>2</sub> levels decreasing plant nitrogen - and therefore protein - concentration, the nutrient content of crops. As far as malnutrition is concerned, I must refer back to the principles of basic human rights, and where that is threatened, serious reflection and mitigation should follow.

The detriment of climate change on global health is not limited to its physical manifestations, but also in the area of mental health. Described by the American Psychiatric Association as “a chronic fear of environmental doom,”<sup>5</sup> eco-anxiety is an emerging, yet pertinent, issue. According to a 2018 national survey, almost 70% of people in the US are worried about climate change, with 51% feeling helpless.<sup>5</sup> Ranging from post-traumatic stress disorder (PTSD) incurred from hurricane Katrina, to a more ominous sense of growing disquietude in the face of damage to community groups, a loss of food, and reduced medical supply security, it is clear climate change challenges mental health from both more, and less, obvious angles. In a digital world dominated by constant media coverage, people are often overwhelmed by the juxtaposition of their desire to ‘save the planet’, with their supposed lack of control of the problem. After all, instinct is to preserve what we can for future generations.

Now for the tone shift we have all been waiting for: the issue of climate change is not as overcast as it has been in the past. In fact, the question is no longer solely what we have done to propagate it, but rather what we have done, and can further do, to mitigate it. As I mentioned before, adversity breeds innovation, and while this can be seen on a global scale in the development of Carbon Capture and Storage schemes for instance, local efforts are equally laudable. In the UK, Woking Borough Council employs its own utility company (‘Thamesway’), which provides sustainable energy from solar farms. Their endeavour to make their residents’ daily lives more energy efficient has reduced local energy consumption by 52%, and CO<sub>2</sub> emissions by 82%, since 1990.<sup>6</sup> Another small-scale

approach with a large-scale effect is London’s BedZED<sup>6</sup> (Beddington Zero Energy Development) initiative, which has created a region of homes that use 80% less energy for heating. A heroic initiative in itself, the UK Government’s ‘Green Deal’ scheme<sup>6</sup> contributes up to £1,250 towards the cost of installing two energy saving home improvements, like loft insulation. The complaint, therefore, should not be that the necessary innovation does not exist, but rather that it doesn’t always receive the level of support needed to make the difference it strives to establish. It comes down to consumers to pave the path for such progress.

I, for one, believe strongly that education is the engine of revolution. What can be engrained into the youngest of minds will soon translate into a future generation more secure in its endeavours. As a personal example, my seven-year-old brother rose to the challenge of this year’s British Science Week by presenting a project on the issue of global climate change! The simple advice he shared on “switching off the light when leaving the room” and “turning off the tap when brushing your teeth” resonated with me. In fact, these simple solutions prove to be the most effective when undertaken collaboratively as a global population. A study<sup>7</sup> has published that a single light left on overnight over a year accounts for as much greenhouse gas as a car drive from Cambridge to Paris. Kuznets Curve<sup>6</sup> shows the proportionality between rising economic development (where basic priorities of food, water and shelter have been achieved) and affluence, education and an increasing concern for the environment. This reaffirms the significance of a key stakeholder, often overlooked in their capability of bridging the gap between environmental indifference and a genuine chance of change: the consumer. Schools can play a major role in changing perceptions and behaviours by encouraging recycling, reducing food miles and ‘Walk to School’ schemes. As reasonable as it is to blame industry and multinational corporations (MNC)s for their incredulous carbon footprints, considerable responsibility also lies with each and every one of us in our place as consumers. When it comes to reducing carbon footprints, the power lies, quite literally, in our own feet, in that the paths we individually and collectively choose to take will contribute to increasing global sustainability.

To conclude, the growing threat of climate change on the health of populations cannot be underestimated, but the most important message from this essay is that there is still hope. Continued support of ‘green’ initiatives, a more conscientious profile as a consumer and a wider appreciation of our contribution to the global carbon footprint can significantly protect future generations from the impending damage climate change inflicts. Whilst we can’t all be a ‘Greta Thunberg,’ we can at least exercise our responsibility for maintaining a sustainable lifestyle. When it comes to climate change, the smallest initiatives can make the biggest difference. So, in the face of this adversity, let us collaborate as a global community of responsible consumers and support innovation with the strongest of ladders: effort.

## DISCLAIMER STATEMENTS

### Conflict of Interest

none declared



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