

Is Bioethics relevant today for Climate Change Deliberations and the Future of Health?

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Abstract:

The World Health Organization (WHO), the World Meteorological Organization, and the United Nations Environmental Program have noted with grave concern, the implication of climate change on human health. A legally binding international treaty on climate change was signed by 195 countries in 2016 in Paris. In June 2017 the United States has withdrawn from the Paris climate accord. However, to ensure economic prosperity and global health, we need a broad understanding of the societal consequences of a warming planet as well as honest and open communication of scientific evidence to the public policy makers.

The climate change impacts are numerous which threatens our own survival in terms of economic growth and sustainable development. Climate change also threatens the health of our people - children and grandchildren through increased diseases, freshwater shortage, worsened smog and much more. The recent devastation (in September 2017) through hurricanes, Irma and Maria, in the USA and the Caribbean is just the tip of iceberg of the situation we are heading to in the future, if we do not take care of our environment.

As citizens of our nations and of our Earth, we are endowed with certain rights, powers, and obligations, which demand that we act both individually and as well as collectively to protect and preserve the ongoing evolution of life on Earth, including our future generations. The human health is greatly affected by the environment, but the provision of health care can have substantial, adverse environmental impacts. The bioethicists can explore the moral, philosophical, theological, and legal foundations of environmental policy affected by climate change. The commercial and industrial world should pay attention to the need of the people, especially those at the margins of the society with regard to their health and hygiene. This is the moral obligation of all nations towards the global citizens.

Therefore, the bioethicists should take part in the discussion about global warming with special reference to human health and contribute their perspectives to these urgent issues.

Key Words: World Health Organization, Climate Change, Sustainable Development, Environmental Policy

Introduction:

Human health has always been influenced by climate and weather. Changes in climate and climate variability, particularly changes in weather extremes, affect the environment that provides us with clean air, food, water, shelter, and security. Climate change, together with other natural and human-made health stressors, threatens human health and wellbeing in numerous ways. Some of these health impacts are already being experienced in the world over through natural disaster, hygiene and health hazards.

The United Nations Framework Convention on Climate Change (UNFCCC) defines it as a change of climate that is attributed directly or indirectly to human activity, altering the composition of the global atmosphere. Human activity includes the pollution that arises from industrial activity and other sources that produce greenhouse gases. These gases, such as carbon dioxide, have the ability to absorb the spectrum of infrared light and contribute to the warming of our atmosphere. Once produced, these gases can remain trapped in the atmosphere for tens or hundreds of years. *Taken as a whole, the range of published evidence indicates that the net damage costs of climate change are likely to be significant and to increase over time* (Rf. Intergovernmental Panel on Climate Change).

Climate change is a significant threat to the health of the all people. The impacts of human-induced climate change are increasing nationwide. Rising greenhouse gas concentrations result in increases in temperature, changes in precipitation, increases in the frequency and intensity of some extreme weather events, and rising sea levels. These climate change impacts endanger our health by decreasing our food and water sources, the air we breathe, the weather we experience, and our interactions with the built-in and natural environments. As the climate continues to change, the risks to human health continue to grow.

Current and future climate impacts expose more people in more places to public health threats. Already we have observed climate-related increases in our exposure to elevated temperatures; more frequent, severe, or longer-lasting extreme events; degraded air quality; diseases transmitted through food, water, and disease vectors (such as Ticks and mosquitoes); and stresses to our mental health and well-being.

Measuring the Health Effects:

According to World Health Organization, climate change is expected to cause approximately 250, 000 additional deaths per year between 2030 and 2050, such as 38, 000 due to heat exposure in elderly people, 48, 000 due to diarrhoea, 60, 000 due to malaria etc.

Temperature-Related Impacts:

Warmer average temperatures will lead to hotter days and more frequent and longer heat waves.[1] These changes will lead to an increase in heat-related deaths in the United States. Exposure to extreme heat can lead to heat stroke and dehydration, as well as cardiovascular, respiratory, and cerebrovascular diseases.[2][3]

Air Quality Impacts:

Changes in the climate affect the air we breathe both indoors and outdoors. Warmer temperatures and shifting weather patterns can worsen air quality, which can lead to asthma attacks and other respiratory and cardiovascular health effects.[4] Wildfires, which are expected to continue to increase in number and severity as the climate changes, create smoke and other unhealthy air pollutants.[4] Rising carbon dioxide levels and warmer temperatures also affect airborne allergens, such as ragweed pollen.

Increases in Ozone:

Scientists project that warmer temperatures from climate change will increase the frequency of days with unhealthy levels of ground-level ozone, a harmful air pollutant, and a component in smog.[4] The effects would be:

- People exposed to higher levels of ground-level ozone are at greater risk of dying prematurely or being admitted to the hospital for respiratory problems.[4]
- Ground-level ozone can damage lung tissue, reduce lung function, and inflame airways. This can aggravate asthma or other lung diseases. Children, older adults, outdoor workers, and those with asthma and other chronic lung diseases are particularly at risk.[5]
- Smog in Los Angeles, for example, decreases visibility and can be harmful to human health. Source: [California Air Resources Board \(2014\)](#).^{[1][7][11]}^[SEP:SEP] Because warm, stagnant air tends to increase the formation of ozone, climate change is likely to increase levels of ground-level ozone in already-polluted areas of the United States and increase the number of days with poor air quality.[4]

The higher concentrations of ozone due to climate change may result in tens to thousands of additional ozone-related illnesses and premature deaths per year by 2030 in the United States, assuming no change in projected air quality policies.[4]

Changes in Particulate Matter:

Particulate matter is the term for a category of extremely small particles and liquid droplets suspended in the atmosphere. Fine particles include those smaller than 2.5 micrometers (about one ten-thousandth of an inch). Some particulate matter such as dust, wildfire smoke, and sea spray occur naturally, while some is created by human activities such as the burning of fossil fuels to produce energy. These particles may be emitted directly or may be formed in the atmosphere from chemical reactions of gases such as sulfur dioxide, nitrogen dioxide, and volatile organic compounds. The expected adverse effects could be:

- Inhaling fine particles can lead to a broad range of adverse health effects, including lung cancer, chronic obstructive pulmonary disease (COPD), and cardiovascular disease.[4]
- Climate change is expected to increase the number and severity of wildfires. Particulate matter from wildfire smoke can often be carried very long distances by the wind, affecting people who live far from the source of this air pollutant.
- Older adults are particularly sensitive to short-term particle exposure, with a higher risk of hospitalization and death.[4] Outdoor workers like firefighters can also have high exposure.

Vector-borne Diseases:

Vector borne diseases are illnesses that are transmitted by disease *vectors*, which include mosquitoes, ticks, and fleas. These vectors can carry infectious pathogens, such as viruses, bacteria, and protozoa, from animals to humans. Changes in temperature, precipitation, and extreme events increases the geographic range of diseases spread by vectors and can lead to illnesses occurring earlier in the year.

- The geographic range of ticks that carry Lyme disease is limited by temperature. As air temperatures rise, ticks are likely to become active earlier in the season, and their range is likely to continue to expand northward.[4] Typical symptoms of Lyme disease include fever, headache, fatigue, and a characteristic skin rash.
- Mosquitoes thrive in certain climate conditions and can spread diseases like West Nile virus. Extreme temperatures—too cold, hot, wet, or dry—influence the location and number of mosquitoes that transmit West Nile virus. More than three million people were estimated to be infected with West Nile virus in the United States from 1999 to 2010.[4]

The spread of climate-sensitive diseases will depend on both climate and non-climate factors such as land use, socioeconomic and cultural conditions, pest control, access to health care, and human responses to disease risk. The United States has public health infrastructure and programs to monitor, manage, and prevent the spread of many diseases. The risks for climate-sensitive diseases can be much higher in poorer countries that have less capacity to prevent and treat illness.[6]

Water-Related Illnesses:

People can become ill if exposed to contaminated drinking or recreational water. Climate change increases the risk of illness through increasing temperature, more frequent heavy rains and runoff, and the effects of storms. Health impacts may include gastrointestinal illness like diarrhea, effects on the body's nervous and respiratory systems, or liver and kidney damage.[4] Some of the symptoms and after effects are:

- Climate impacts can affect exposure to waterborne pathogens (bacteria, viruses, and parasites such as *Cryptosporidium* and *Giardia*); toxins produced by harmful algal and cyanobacterial blooms in the water; and chemicals that end up in water from human activities.[4]
- Changing water temperatures means that waterborne *Vibrio* bacteria and harmful algal toxins will be present in the water or in seafood at different times of the year, or in places where they were not previously threats.[4]
- Runoff and flooding resulting from increases in extreme precipitation, hurricane rainfall, and storm surge will increasingly contaminate water bodies used for recreation (such as lakes and beaches), shellfish harvesting waters, and sources of drinking water.[4]
- Extreme weather events and storm surges can damage or exceed the capacity of water infrastructure (such as drinking water or wastewater treatment plants), increasing the risk that people will be exposed to contaminants.[4]

Water resource, public health, and environmental agencies in the United States provide many public health safeguards to reduce risk of exposure and illness even if water becomes contaminated. These include water quality monitoring, drinking water treatment standards and

practices, beach closures, and issuing advisories for boiling drinking water and harvesting shellfish.

Mental Health:

Any change in a person's physical health or surrounding environment can also have serious impacts on one's mental health. In particular, experiencing an extreme weather event can cause stress and other mental health consequences, particularly when a person loses loved ones or their home.[4] For example:

- Individuals with mental illness are especially vulnerable to extreme heat. Studies have found that having a pre-existing mental illness tripled the risk of death during heat waves.[4] People taking medication for mental illness that makes it difficult to regulate their body temperature are particularly at risk.
- Even the perceived threat of climate change (for example from reading or watching news reports about climate change) can influence stress responses and mental health. [4]

There is increased concern by the international agencies including World Health Organization, the World and United Nations Environmental program on the impact of Climate change on human health. They have identified the following diseases, namely,

1. Asthma and other respiratory diseases
2. Cancer
3. Cardiovascular disease and stroke
4. Foodborne disease and nutrition
5. Human developmental effects
6. Mental health and stress related disorders
7. Neurological diseases
8. Vector-borne disease and Zoonotic disease
9. Waterborne disease
10. Weather related mortality and morbidity

Other Health Hazard:

The following pathogens are also identified which causes diseases, which are called deadly dozen. They spread the disease into new regions and affect human health as a result of climate change. The deadly dozen are:

1. Avian flu
2. Tuberculosis
3. Ebola virus
4. Cholera
5. Babesiosis
6. Parasites
7. Lyme disease
8. Plague
9. Rift valley fever
10. Sleeping sickness
11. Yellow fever

12. Red tides (Algal blooms)

Our Responsibility:

In order to effectively combat these diseases, which are mainly due to climate change, we have the responsibility of following certain ethical values in our day-to-day life and in public administration.

1. **Stewardship and Responsibility:** We all (authorities, financiers, private sectors and the society) have the responsibility to protect and develop our limited and endangered resources and to ensure ecological integrity and human wellbeing.

2. **Respect for Persons:** We all have a duty to act responsibly and prudently towards each other and towards future generations in relation to resources and in respect of initiatives that could impact on climate change and human health.

3. **Non-maleficence:** We all should have a moral obligation not to harm, facilitate harm, or be complicit in the harm done to others in relation to initiatives that could have an impact on climate change and human health.

4. **Risk-Benefit Analysis and Burden Identification:** The implication of initiatives that have an impact on climate change and human health must be timely identified, preferably prospectively.

5. **Reasonableness and Relevance:** The rationale that underpins initiatives, which impact or could impact climate change and human health must appeal to relevant evidence, values and principles.

6. **Collaboration:** The entire international as well as the local communities should be engaged in collaboration to mitigate against the potential impact of climate change and adverse human health outcomes associated therewith.

7. **Solidarity, Duty of Rescue, Justice and Reciprocity:** Humans have a moral responsibility to ensure the common welfare of humankind, particularly the poor and marginalized, who are experiencing or could experience detrimental health outcomes related to climate change. This necessitates providing aid and support to these individuals

8. **Transparency, Publicity and Engagement:** The rationale and potential health implication of existing or proposed initiatives that have an impact on or could have an impact on, climate change and human health must be publically disclosed and accessible to affected stakeholders through meaningful engagement process. [6]

In December 2004, the Collaborative Program on the Ethical Dimensions of Climate Change was launched at the 10th Conference of Parties to the United Nations Framework Convention on Climate Change (COP 10) in Buenos Aires, Argentina. The major outcome of this meeting was the Buenos Aires Declaration on the Ethical Dimensions of Climate Change. [7] While the Declaration was an important first step in recognizing the role of ethics in climate change deliberations, it does not contain a guidance evaluative framework, and did not integrate

principles of ethics from a variety of fields. The Declaration also raises general questions for consideration, rather than suggesting concrete ethics guidance or governance principles. For instance, the Declaration poses the following questions without answering them:

- “What ethical principles should guide the choice of specific climate change policy objectives including but not limited to maximum human-induced warming, and atmospheric greenhouse gas targets?”
- What ethical principles should be followed in allocating responsibility among people, organizations, and governments at all levels to prevent ethically intolerable impacts from climate change?”

As a result, the Declaration has failed to serve as an adequate guidance framework to national and international policy-makers or climate change negotiators

In 2015, the WHO Executive Board endorsed a new work plan on climate change and health. This includes:

- **Partnerships:** To coordinate with partner agencies within the UN system, and ensure that health is properly represented in the climate change agenda.
- **Awareness Raising:** To provide and disseminate information on the threats that climate change presents to human health, and opportunities to promote health while cutting carbon emissions.
- **Science and Evidence:** To coordinate reviews of the scientific evidence on the links between climate change and health, and develop a global research agenda.

Conclusion:

We know that we could sooner or later become an endangered species if we indiscriminately exploit the environment and if we do not take care of the sustainable environment. Nature has been driven to the tolerance level and now it is boomeranging as we could see the disasters on unexpected magnitude in the recent natural disasters. These could have been avoided if we were diligent in the past. But at least we should be able to act now to do our best to be the stewards of the environment instead of being the exploiters of it. And we have to do it now – To wait for the future would be too late to do damage control. Each one at his/her personal level should take efforts, each community, city, nation etc should do their part to honour and preserve the environment. Health in a community is a parameter of the health of environment – Let us then act diligently.

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Appendix:

