

FORUM: Economical and Social

ISSUE: Protecting Populations from health issues linked to climate change

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Introduction

“Climate change is a terrible problem, and it absolutely needs to be solved. It deserves to be a huge priority.” - Bill Gates

In the late 19th century, attention was first drawn towards the increasingly large amounts of carbon dioxide which were gathering in the atmosphere, which in turn was leading towards an increase in global temperature, by accelerating the greenhouse process. Today more than ever, the problem is becoming more and more evident, as the hottest ever recorded temperatures have all been in the last two decades. With this increase in temperature, come many related problems including diseases related to climate change. In particular the increase in heat has led to an increase in mosquitoes, ticks, and even certain allergens. But it will also lead to the expansion of the oceans, creating floods, it will create even more severe droughts, leading to more famine and there so many more consequences affecting our health.

Since climate change has been ignored for a long time, these problems especially show why this is an important issue for the sake of every living person's health. This is particularly true as climate related diseases are amongst the largest global killers.

Definitions of Key Terms

Climate change: the long-term, large scale rise in the planet's temperature or climate.

Fossil fuels: natural fuels like gas or coal formed in the geological past from the remains of living organism. They are the primary source of pollution today.

Allergen: A substance that causes an allergic reaction. Pollen is an allergen and as levels of carbon dioxide increase so do the levels of pollen produced.

Vector-borne disease: A disease caused by an infected arthropod species, like ticks and mosquitoes. Arthropod vectors are cold blooded so they become more active as temperature increases.



Greenhouse gases: A gases that contributes to the greenhouse effect by absorbing infrared radiation.

Greenhouse effect: an atmospheric heating phenomenon, caused by short-wave solar radiation being readily transmitted inward through the earth's atmosphere but longer-wavelength heat radiation less readily transmitted outward, owing to its absorption by atmospheric carbon dioxide, water vapor, methane, and other gases; thus, the rising level of carbon dioxide is viewed with concern.

Background Information

In the last 100 years, the world has warmed up by approximately 0.75°C. But more importantly, over the last 50 years, human activities, particularly the burning of fossil fuels, have released sufficient quantities of carbon dioxide and other greenhouse gases to trap additional heat in the lower atmosphere and affect the global climate. With the average temperature rising every year, many health issues linked to climate change are increasingly going to become a threat to the world's population.

2014 was the hottest year ever recorded with an average temperature of 14.6°C, breaking the previous records of 2005 and 2010 by 0.04°C. Including 2014, 9 of the 10 warmest years in the 135-year period of record have occurred in the 21st century. But how will the increase in temperature change our lives?

Due to the extreme heat that will gradually affect the world, elderly people will start to develop respiratory and cardiovascular diseases more frequently. These diseases are also linked to the raise of ozone and other pollutants in the air caused by climate change and pollution. Pollen and other aeroallergen levels will continue to grow in extreme heat, triggering asthma for example, which affects 300 million people. Malaria is strongly influenced by climate. Transmitted by mosquitoes, malaria kills almost 800 000 people every year, including children under 5 years old. Dengue fever (transmitted by mosquitoes) is also highly sensitive to climate conditions. Studies suggest that climate change could expose an additional 2 billion people to dengue transmission by the 2080s. And according to the WHO, "taking into account only a subset of the possible health impacts, and assuming continued economic growth and health progress, climate change is expected to cause approximately 250 000 additional deaths per year between 2030 and 2050; 38 000 due to heat exposure in elderly people, 48 000 due to diarrhoea, 60 000 due to malaria, and 95 000 due to childhood undernutrition".

Other health issues linked to climate change are flooding due to the heating of the oceans that will cause the water to expand and therefore flood countries close to the water surface like the



Netherlands. Flooding can also create problems for freshwater sources, because flooding can contaminate water sources with water-borne diseases. This would particularly affect countries battling against poverty. On the other hand, drought is also another consequence of climate change, this will lead to low or even no agriculture even certain regions or in the case of California, whole rivers and lakes would dry up.

Climate change has become the biggest threat to to society and to the world. If nothing is done soon, the consequences could be tragic with millions dead and so many more suffering from its wrath.

Major Countries and Organizations Involved

Every country is involved, as the problem of climate change is global, because of this all countries must contribute to reducing climate change.

Climate action network: A worldwide network of almost 1000 Non-Governmental Organizations in over 100 different countries. Its goal is to Promote governmental and individual action to attempt to reduce climate change.

Intergovernmental Panel on Climate Change (IPCC): is a scientific intergovernmental body under the control of the United Nations, set up at the request of member governments. It was first established in 1988 by two United Nations organizations, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).

MEDCs: These countries are responsible for most of the earth's climate change. This is because they rely the most on fossil fuels for most of their energy. While NICs also cause pollution they do not pollute as MEDCs.

World Health Organization (WHO): is a specialized agency of the United Nations (UN) that is concerned with international public health. The WHO is responsible for the World Health Report, a leading international publication on health, the worldwide World Health Survey, and World Health Day.

Red Cross: The International Red Cross and Red Crescent Movement is an international humanitarian movement with approximately 97 million volunteers, members and staff worldwide which was founded to protect human life and health, to ensure respect for all human beings, and to prevent and alleviate human suffering.



Timeline of Events

- **1859:** Tyndall discovers that some gases block infrared radiation. He suggests that changes in the concentration of the gases could bring climate change.
- **1896:** Arrhenius publishes first calculation of global warming from human emissions of CO₂.
- **1960:** Keeling accurately measures CO₂ in the Earth's atmosphere and detects an annual rise.
- **1967:** Manabe and Wetherald make a convincing calculation that doubling CO₂ would raise world temperatures a couple of degrees.
- **1968:** Studies suggest a possibility of collapse of Antarctic ice sheets, which would raise sea levels catastrophically.
- **1970:** First Earth Day: Environmental movement attains strong influence, spreads concern about global degradation.
- **1972:** Droughts in Africa, Ukraine, India cause world food crisis, spreading fears about climate change.
- **1975:** Warnings about environmental effects of airplanes leads to investigations of trace gases in the stratosphere and discovery of danger to ozone layer.
- **1981:** Strong global warming since mid-1970s is reported, with 1981 the warmest year on record.
- **1985:** Villach Conference declares consensus among experts that some global warming seems inevitable, calls on governments to consider international agreements to restrict emissions.
- **1987:** Montreal Protocol of the Vienna Convention imposes international restrictions on emission of ozone-destroying gases.
- **1988:** News media coverage of global warming leaps upward following record heat and droughts
- **1990:** First IPCC report says world has been warming and future warming seems likely.
- **1992:** Conference in Rio de Janeiro produces UN Framework Convention on Climate Change, but US blocks calls for serious action.
- **1997:** International conference produces Kyoto Protocol, setting targets for industrialized nations to reduce greenhouse gas emissions if enough nations sign onto a treaty (rejected by US Senate in advance).
- **2001:** Bonn meeting, with participation of most countries but not US, develops mechanisms for working towards Kyoto targets.



- **2005:** Kyoto Protocol goes into effect, signed by major industrial nations except US. Work to retard emissions accelerates in Japan, Western Europe, US regional governments and corporations
- **2009:** Many experts warn that global warming is arriving at a faster and more dangerous pace than anticipated just a few years earlier.
- **2012:** The UN climate change conference, countries commit to Kyoto protocol until 2020.
- **2015:** COP21 in Paris to discuss climate change amongst the world leaders.



Relevant UN Treaties and Events

The WHO Constitution: marks the first formal demarcation of a right to health for everybody, in international law. It was signed in 1946 and it also enumerates some principles of this right as healthy child development; equitable dissemination of medical knowledge and its benefits; and government-provided social measures to ensure adequate health.

Villach (Austria) Conference: from October 9 to 15, 1985, this conference was the result of the continuing work of several international entities. It was set-up to attempt to understand the issues related to the stratospheric ozone layer depletion and climate change.

Montreal Protocol: an international treaty signed in 1987 was designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.

Rio de Janeiro Conference (Earth Summit): from 3 to 14 June 1992, it was a conference that set-up the ground-work for the Kyoto Protocol.

Kyoto Protocol: a treaty signed in 1997 that limits the emission of greenhouse gases in certain countries. Its terms required 55 countries to ratify, and once they had ratified the parties had to reduce emissions of greenhouse gases by at least 55%.



The UN climate change conference of 2012: There is a yearly UN conference , but this one was particularly important. At this conference a new commitment period to the Kyoto protocol was signed. All the countries that agreed to the commitment must now commit to the Protocol until 2020.

COP21: The COP21, or CMP11, conference is a United Nations Climate Change Conference, that will take place from the 30th of November to the 11th of December. It had been in place since March 1994 and 196 states have ratified.

WHO conference on health and climate: This conference took place in August 2014, in switzerland, with the objective of creating more concrete steps towards implementing health protection. It's main objectives were to protect health from climate change, encourage health promoting climate change policies and identifying health benefits related to the reduction of greenhouse gases and other pollutants.

Previous Attempts

A major component of the issue is that the world has realized too late that climate change is a massive problem. This is a problem the world has been battling with for about 50 years. There haven't been many successful attempts to stop the phenomenon but here are some:

- In 2007, G8 leaders promised to cut back on CO2 emissions by 80% for 2020. This however, was heavily criticized as they did not set specify goals and ideas, meaning that many consider this pledge to be an empty promise.
- The Kyoto Protocol was an incredibly important attempt at dealing with climate change. It limits the greenhouse emissions of 55 countries by at least 55%, but even this might be too little too late.
- Carbon pricing is an idea thought of in 1920 by Arthur Pigou. It has since been adopted by environmentalists as the the preferred method to reduce gas emissions however, it has not been introduced at a significant international level. On the other hand, this method will be discussed at the COP21.

Possible Solutions

The most obvious solution to preventing health issues related to climate change is attempting to slow down the phenomena. Almost all countries contribute to climate change, but not in equal proportions. Countries like the USA and China are much larger contributions than less economically developed countries like Namibia or Greenland, so the necessary amount of reduction in the use of carbon emitting fuels will vary slightly from one country to another.



Overall reducing fossil fuel use and replacing it with sustainable energy sources is necessary. Another solution is vaccination and proper protection from vector-borne diseases. While many of these diseases have no known vaccine, like dengue fever, since they transmitted by insects, nets and removing stagnant water to prevent breeding would decrease the number of infections. There also needs to be a raise in awareness that climate change is a fundamental threat to human health due to the fact that many don't even believe that climate change is real. Moreover, another solution would be to strengthen the health system, to assist countries in assessing their health vulnerabilities and build capacity to reduce health vulnerability to climate change.

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