

ISSUE DESCRIPTION

COMMITTEE World Health Organization

ISSUE Addressing the negative effects of climate change on human health

SUBMITTED BY Anna Viktória Takács, Chair of World Health Organization

APPROVED BY Szófia Tóth, President of the General Assembly

Introduction

The origins of human-induced climate change, which has become an urgent issue for many nations around the world, date back to early 19th century, the pre-industrial period. The problem has affected many aspects of society, not only in terms of environmental protection, but also in terms of health and well-being. In recent years worsening air pollution and record-breaking temperatures have gained recognition from both politicians and the general public. Today, severe weather events are headline news. In countries with traditionally mild summer climates, reports about heat waves - where people who are vulnerable to the aforementioned conditions, lose consciousness because of the extreme summer heat - are increasing. In developing nations, dangerous air pollution leads to an increase in respiratory illnesses, hospital admissions, and in the worst-case scenario, death. Furthermore, the increasing risk of infectious diseases and a decrease in the availability of drinking water. Although there have been many attempts to solve such issues, it still remains a major problem in the provision of basic healthcare.

Definition of Key Terms

Climate change - A long-term change in the average weather patterns that have come to define Earth's local, regional, and global climates.

Vector-borne diseases - Disease that results from an infection transmitted to humans and other animals by blood-feeding arthropods, such as mosquitoes, ticks, and fleas.

Heat stroke - It occurs when the body can no longer control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down.

Air pollution - Contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere.

Respiratory illnesses - An acute or chronic illness affecting the respiratory system (respiratory system is the group of organs that help the gas exchange within the human body).

Cardiovascular illnesses - A disease targeting the heart or blood vessels.

General Overview

Climate change has become a challenge for all nations not only in economic terms, but also when it comes to human health. But what exactly is climate change? What factors cause and contribute to climate change? And, most importantly, how does it affect people's well-being and lives?

Climate change is a phenomenon causing changes in the average temperatures, weather conditions, increased droughts and floods, overall causing the rapid transformation in the ecosystem. According to the European Commission, the main driver of climate change is the greenhouse effect. The greenhouse effect is created when air has a high concentration of CO₂, methane, nitrous oxide, or fluorinated gases. These chemical substances create an effect similar to how greenhouses work: It lets in the sun's heat into the atmosphere, but these gases don't let all the heat leave the atmosphere causing the gradual growth of the average temperature. According to the European Commission: "2011-2020 was the warmest decade recorded, with global average temperature reaching 1.1° C".

Another contributor to the issue is the rapid industrialisation of developing countries. factories burn a massive amount of coal, oil and gas. Moreover, due to the high demand and mass production of companies there are 42 million trees cut down each day, to fulfil the industry's needs. Trees play a crucial role in producing fresh air, but with the aforementioned actions not only do we create more polluted air but limit the options for air purification. Other noxious chemicals in the atmosphere are created by fertilisers in agriculture and household machines that produce fluorinated gases during their use. These are the main contributors to the growth of greenhouse gases in our planet's atmosphere.

THE CONSEQUENCES OF HEAT WAVES AND THE GROWTH OF THE AVERAGE TEMPERATURE

The staggering growth of temperature levels has caused several health problems, such as heat-related illnesses, vector-borne diseases, stroke, dehydration, as well as cerebrovascular disease. Research shows that 37% of heat-related deaths are proven to be the result of human-induced climate change.

Heat-related illnesses, heat strokes, dehydration: These are all caused by the human body being exposed to high heat and strong, direct sunlight. The heat causes the body to sweat as an attempt to regulate the body temperature with this a lot of water evaporates from our bodies causing dehydration. The direct sunlight is another factor that can lead to the human body overheating. The consequences of being exposed to these conditions can be feeling tired, dizzy, hallucinating, skin-damage, blood pressure drop, fainting or, in worst cases: death. This is most dangerous for those who have lower body-water content such as kids and elders. It's also a big fear of those, who have to constantly be outdoors exposed to such extreme weather conditions (agricultural workers, construction workers, lifeguards etc.)

Vector borne diseases: Vector borne diseases have been playing a significantly big role in healthcare due to global warming. With the changing climate and the increase in temperatures the number of people falling sick because of Malaria has been rapidly increasing. They are connected in the sense that vector borne diseases are usually being spread by ticks, mosquitoes, and fleas. In the case of Malaria, mosquitoes are the culprits. Mosquitoes need humidity and warm temperatures to stay alive. As a result of climate change their living environment can expand and, consequently, more people become vulnerable to disease. In a study done in 2023 it was found that mosquitoes have elevated their range by almost 5 kilometres from the Equator every year in the past century. This number is only expected to be growing in the future.

The effects of air pollution: The WHO states that “More than 99% of the population lives in areas where the air pollution is above WHO air quality guidelines and 4.2 million deaths are attributed to ambient air pollution each year.” The main factors causing air pollution are the exhaust gases produced by factories, agricultural activities, vehicles, the burning of fossil fuels and many more. Chemicals such as carbon-dioxide, carbon-monoxide, ammonia and methane are released into

the atmosphere causing several medical problems to the human body. Long term exposure to polluted air can cause cancer, reduced lung function, respiratory illnesses and cardiovascular diseases.

Major Parties Involved

United Nations: The United Nations recognises the importance of the issue and has already done several steps to resolve the problem. The UN has created several frameworks, institutions, and promotional strategies to solve the issue. These include the Lancet Countdown on Health and Climate Change (tracks the progress made in climate change's effects on health and provides data about the earlier it), Global Climate and Health Alliance, Global Health Observation and many more. The UN also supports adaptation and resilience by funding and developing plans and strategies. The United Nations has the goal to cut gas emission by almost half until the year 2030.

Australia: Australia is one of the most affected countries by heat waves. Due to the gradually hotter and drier summers, Australia has a growing number of wildfires every year. 2019 was the hottest recorded year and 2019-2020 was the country's worst recorded bushfire season. Wildfires endanger the safety of those living near to forests, whilst smoke from such fires contributes to air pollution, including smog in major Australian cities. The country also has programs and research focused on climate change impacts on health, including heatwaves and vector-borne diseases.

United States of America: The United States of America is one of the main countries receiving enormous heatwaves year by year. But that's not the only problem the United States of America is facing: The USA also produces 24% of the world's CO₂ emissions. As a consequence, US states have faced a big growth in healthcare complications. The federal government has already taken measures on the matter such as the establishment of the U.S. Global Change Research Program, Centers for Disease Control and Prevention and organising campaigns such as Heat Safety Campaigns, Vector-Borne Disease Awareness Campaigns and many more.

United Kingdom: In past years the UK has been recording record-breaking temperatures due to the heatwaves, including July 2022 when mercury levels soared above 40° C. The UK extensively funds research into climate change and health, introducing the Climate Change Act in 2008 (one of the world's first and most comprehensive climate laws). The government is also heavily promoting the use of electric vehicles and tries to reduce air pollution with campaigns and promotions.

People's Republic of China: In the last decade, China was hit with extreme heat waves that in 2019 caused 26800 people's death. Professionals also predict that in the future Malaria transmission will increase 40-140% because of the increasing heat. To combat this, the PRC has introduced cooling centres in cities like Wuha, Hangzhou and Xi'an. The People's Republic has also collaborated to promote the negative effects of climate change with partners like the World Health Organisation and the Global Climate and Health Alliance. Even with all of this, China is still one of the leading countries when it comes to air pollution - particularly with coal fuelled power stations.

Denmark, Sweden, Norway, and Chile: The governments of these countries have the leading position with their legal frameworks and action plans to combat climate change. For example, in Norway, about 88% of all cars sold last year were electric cars. Chile was the first Latin-American country to present their long-term action plan on combating climate change. One of their priorities is to reduce the amount of CO2 in the air by 30% until the year 2023. Denmark, Sweden, and Norway being part of the Nordic countries also found success in energy and carbon taxes, which resulted in people switching to renewable energy sources.

Pan American Health Organisation: The Pan American Health Organisation is a regional office of the WHO specifically in the US. It plays a crucial role in addressing the negative effects of climate in America. They also organise promotions to improve citizen's knowledge on health, helping to strengthen healthcare systems in each country and provide technical assistance.

Climate and Health Alliance (CAHA): CAHA is a national charity and organisation dedicated to promoting and raising awareness about climate change's negative effects on our bodies.

Health and Environment Alliance (HEAL): The Health and Environment Alliance is a leading non-profit organisation in Europe, whose mission is to raise awareness about climate

change and to shape laws in connection to the environmental damages caused to human health.

Intergovernmental Panel on Climate Change (IPCC): IPCC is an intergovernmental organisation created by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). The purpose of this was to create an organisation that can provide all countries in the UN or WMO with reports on the current situation of climate change. The IPCC is also tasked with providing information on the causes of climate changes in certain regions and doing research on future risk factors of global warming.

Global Climate and Health Alliance: An alliance between medical institutions from all over the world. These institutions focus on helping patients who suffer from the side effects caused by climate change. They also heavily promote the importance of climate change and human health.

Timeline of Events

1988 - The establishment of the Intergovernmental Panel on Climate Change (IPCC).

1992 - The United Nations Framework Convention on Climate Change (UNFCCC) is created. This lays the foundation for combating climate change internationally.

2003 - The WHO establishes the Climate Change and Health Program to raise awareness about the negative effects of climate change on human health. The program also promotes adaptation strategies.

2011 - Founding of the Global Health Alliance.

2018 - The World Health Assembly holds a conference on the topic of climate change and human health and adopts a resolution.

Previous Attempts to Solve the Issue

Among the sustainable goals set by the UN, goal number 13 is climate action goal. While this doesn't necessarily aim towards health care, combating climate change is still a necessary step to improve the medical inconveniences caused by global warming. The steps are the following:

- i. Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries,
- ii. Integrate climate change measures into national policies, strategies, and planning,
- iii. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning,
- iv. Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible,
- v. Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth, and local and marginalized communities.

*Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

The World Health Organisation has also created plans regarding climate change and human health. These points are:

- i. advocacy and partnerships: ensuring, that in the process of combating climate change, health is properly represented within the UN system, and helps promoting the issue to the general public,
- ii. monitoring science and evidence: developing global research agenda, assessing the needs and sensitivity of the preparation of countries to the threats of climate change,
- iii. supporting countries to protect human health from climate change,
- iv. building capacity on climate change and human health.

The establishment supports countries, who want to build a climate-resilient health system.

Possible Solutions and Approaches

RAISING AWARENESS

Many people don't know or possess only brief knowledge of the topic. Moreover, humans are the main contributors to climate change. With raising awareness, more citizens can focus on the problem and make changes in their daily habits to combat climate change. Through promotional ads and campaigns people can also protect themselves for instance, by wearing special masks when the air pollution reaches concerning levels in a region, or by staying hydrated.

CREATING RESEARCH INSTITUTIONS

Modern problems require modern solutions. With the establishment of research laboratories we can systematically examine matters in more detail and find alternative, scalable solutions.

FUNDING

Helping developing countries is of key importance to enabling accessible healthcare around the world. Less developed countries have fewer healthcare institutions, making it more difficult to access professional help in case of a health emergency.

IMPROVED WATER MANAGEMENT

Tracking water resource management and safe drinking water accessible to prevent the health negative impacts of droughts and waterborne diseases.

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