

Mechanisms For Addressing the Effects of Climate Change on The Spread of Epidemics

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Abstract:

Climate change has become one of the most prominent global issues of the present time, due to its serious impacts and grave risks on the environment, affecting all countries around the world. Among the most significant of these impacts is the spread of epidemics, which constitute a natural consequence of these climatic changes.

Accordingly, the international community is increasingly adopting various strategies and policies aimed at confronting these two phenomena and mitigating their severe consequences.

In this context, the leading role played by the United Nations through its specialized agencies, particularly the World Health Organization, becomes particularly evident.

Keywords: Climate change, Spread of epidemics, Environmental impacts, Mitigation strategies, World Health Organization (WHO).

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1. INTRODUCTION:

Among the most prominent challenges facing the world in the twenty-first century is the phenomenon of climate change, particularly in light of the remarkable rise of industrial activity to unprecedented levels, driven by excessive energy consumption and the heavy reliance on burning fossil fuels, which is considered one of the main factors causing climate change.

In this context, developed industrial countries are ranked among the largest sources of greenhouse-gas emissions worldwide.

One of the most significant consequences of this phenomenon, which has turned climate change into a central global issue, is the spread of epidemics.

These epidemics represent one of the gravest outcomes of climate change, arising from its direct impact on the environment in which humans live. As a result, human beings find themselves exposed to serious threats to their health and lives, whether through epidemics caused by pollution by-products or through climate change itself and the associated phenomena.

In view of the serious threats posed by climate change and its severe consequences on the environment and on the spread of epidemics, international calls have increased for effective measures to counter this phenomenon and to mitigate its disastrous effects.

In response, a range of mechanisms has emerged, mainly through the organization of numerous international conferences and meetings, culminating in the adoption of several international agreements and legal instruments designed to address this issue.

In parallel, the role played by international organizations in confronting both climate change and the spread of epidemics has become increasingly important.

Among these organizations, the United Nations stands out as a key body that accords climate change a high degree of priority, placing it at the core of its agenda and among its main concerns. On the health front, particularly regarding epidemics linked to climate change, the World Health Organization has essentially become a global safety valve, through its initiatives and programs aimed at containing epidemics and reducing the threat they pose to the health and lives of people in countries around the world.

Faced with the wide-ranging spread of climate change and its negative repercussions across various fields, especially in relation to the spread of epidemics, it has become necessary to adopt comprehensive and effective strategies to address these two phenomena.

From this perspective, the central problematic question of this paper arises: **To what extent do the mechanisms adopted at the international level contribute to confronting the phenomena of climate change and the spread of epidemics?**

In order to answer this question and to cover its various dimensions, the paper follows a methodical structure divided into two main sections; The first section analyzes the impact of climate change on the spread of epidemics, while the second section examines the international mechanisms employed to address these two phenomena.

2. The Effects Of Climate Change On The Spread Of Epidemics

Among the most significant consequences of climate change, which now represent a global threat endangering the Earth as a whole, is the spread of various types of epidemics and diseases. In recent years, a close link has emerged between the climatic changes currently observed worldwide and the resulting outbreaks of infectious diseases, to the extent that climate change is regarded as one of the key factors facilitating the emergence and spread of epidemics.

In order to understand the nature of the impact of climate change on the spread of epidemics, it is first necessary to clarify the meaning of both climate change and epidemics, and then examine the relationship between climate change and the spread of these diseases, along with their associated health and environmental consequences.

2.1 Concept of Climate Change and Epidemics

I will address, in this first section, the definition of climate change first, and then clarify the concept of epidemics second, in order to establish the relationship between the two phenomena.

First: The Concept of Climate Change

A. Definition of Climate Change

Climate change is a phenomenon deeply rooted in the geological history of the Earth. Since its formation, the planet has undergone numerous climatic shifts linked to both periodic and non-periodic astronomical factors, as well as to the Earth's internal geological activities and their impact on the oceans and the land surface. (Dendane, 2022, p. 278)

Over its long history, the Earth has alternated between warm and cold climatic periods, reflecting a persistent state of climatic imbalance, a rising global temperature, and an intensifying trend of change, accompanied by a continuous decline in vegetation cover, biodiversity, and ecological stability.

While seasonal weather fluctuations and temperature variations are natural, the term “climate change” specifically refers to persistent, unusual shifts that go beyond normal variability and become entrenched over long periods, altering the patterns of seasons and disrupting environmental balances. In scientific literature and media, this phenomenon is described using a variety of terms—such as global warming, climate warming, greenhouse effect, and thermal anomaly—all of which point essentially to the same core idea: a rise in the Earth’s average temperature and the breakdown of global climatic equilibrium.

Today, climate change is regarded as one of the most prominent international issues facing humanity as a whole, affecting not only the ecological and scientific spheres but also the economy, human health, and global development. The subject has received growing attention since the end of the 19th century, after climate and earth sciences demonstrated that the planet’s climate is undergoing continuous change with potentially negative consequences for human life and lifestyles. As a result, the scientific literature has offered numerous definitions of climate change, ranging from simple to highly technical, though there is still no globally agreed single definition of the term. (Maïfi. 2024, p. 232)

In this context, the definition provided by the Intergovernmental Panel on Climate Change (IPCC) is among the most widely cited: it defines climate change as “a statistically detectable change in the mean values of climatic elements, such as temperature and precipitation, occurring over long time periods extending across decades.” Similarly, the United Nations Framework Convention on Climate Change terms it “any change in climate that is attributable, directly or indirectly, to human activity that alters the composition of the global atmosphere and is observed in addition to natural climatic variability, over comparable time periods.” (Jibrane and Tiyaïfi, 2004, p. 6)

From these definitions it can be inferred that climate change is a set of persistent shifts in the basic elements of climate—such as temperature,

humidity, precipitation, and wind patterns—measured statistically over long intervals (usually around thirty years).

These shifts occur either due to natural factors, such as changes in solar radiation and volcanic eruptions, or as a consequence of human activities, particularly economic and industrial practices, which have become the main driver of accelerated climate change. (UN Framework Convention on Climate Change, 1992)

The causes of climate change are generally divided into natural causes and human (anthropogenic) causes, which interact to shape the current climatic picture. (Bouzkeri and Lihayani, 2024, p. 231)

Building on the foregoing, climate change can thus be defined as: any significant alteration in climatic elements whose effects become apparent over a considerable period and which reflects on ecosystems, wildlife, and human life, arising either from natural factors or from human practices, directly or indirectly, and whose medium- and long-term impacts are difficult to predict with precision. (Munzer, 2021, p. 304)

B. Causes of Climate Change

■ **Natural causes**

Since its formation, the Earth has gone through a series of geological and climatic changes, driven by various natural factors. The environment is often able to absorb and adapt to these changes through its own systems, yet they still leave significant imprints on the balance of many ecosystems.

The Sun is the primary source of thermal energy that keeps the Earth warm enough to sustain the stability of these systems. However, this warmth is influenced by several factors, such as oceans, polar ice masses, wind circulation, and the structure of the atmosphere, which acts as a “thermal blanket” preventing the Earth’s temperature from dropping to extremely low levels.

In addition, tectonic movements of the Earth’s crust and plate tectonics have altered the planet’s shape and surface area over time, leading to alternating dry and wet periods, and generating geological disturbances such as earthquakes and volcanic eruptions, which are among the main natural drivers of climate change in many regions.

Volcanic eruptions and associated wildfires can also increase the concentration of carbon in the atmosphere, especially when large forest

areas—the “lungs” of the Earth that normally absorb carbon dioxide—are burned, further contributing to warming. (Ibid, p. 305)

- **Human causes**

Scientific studies have shown that the Earth’s average temperature has risen significantly since the beginning of the Industrial Revolution, reaching an increase of roughly 0.6–3°C over the twentieth century.

A major factor behind this warming is the emission of greenhouse gases from the burning of fossil fuels, including chlorofluorocarbons that deplete the ozone layer. These gases are particularly effective at absorbing infrared radiation, which intensifies the greenhouse effect.

As their concentration in the atmosphere increases, the Earth’s capacity to balance carbon absorption with rising temperatures is undermined.

Industrial activity, based largely on the exploitation of natural resources such as intensive deforestation to obtain raw materials and fuel, further reduces the planet’s vegetation cover and weakens the biosphere’s capacity to absorb carbon dioxide. At the same time, the rapid growth of the global population increases demand for energy and resources, multiplying polluting activities. (Ibid, p. 306)

This combination pushes the planet into a critical phase of rising temperatures that is difficult to reverse, and leads to imbalances in the natural equilibrium of living organisms and the emergence of new patterns of epidemics that pose a direct threat to human health and the environment.

Second: The Concept Of Epidemics

A. Definition of epidemics

Epidemics are defined as diseases characterized by specific features that distinguish them from other illnesses, most notably their rapid spread within a given geographical area and at rates exceeding the usual levels, due to quick transmission and infection from one person to another through various routes.

Humanity has witnessed numerous epidemics throughout history, many of which caused heavy loss of life, including the Black Death, cholera, smallpox, typhoid, pertussis, SARS, brucellosis (Malta fever), measles, and AIDS. (Ibid, p. 307)

Epidemics are also defined as a sudden and rapid increase in the number of disease cases within a given community, surpassing the expected levels, and extending over a broad geographical area. A pandemic occurs

when an epidemic spreads across several countries or continents, and usually affects a large number of people, making its consequences more profound in terms of public health, international security, and the global economy. (Wanas, 2021, p. 356)

B. Historical development of epidemics

Human beings have experienced the spread of epidemics since ancient times. Among the most notable is the plague, particularly In the 14th century CE, a same type of plague led to the death of at least 200 million people in Europe and Asia, making it one of the most devastating epidemics in human history.

In addition, smallpox is considered one of the deadliest epidemic diseases in the historical record, having caused an enormous number of casualties across different periods.

A comparative review of the chronology of epidemics reveals the recurrent emergence of outbreaks of varying severity at different times, often accompanied by severe human, social, and economic losses.

In recent decades, this series has been joined by the novel coronavirus (COVID-19), one of the most recently identified infectious viruses, which has turned the concept of epidemics into a global issue requiring multi-sectoral responses and coordinated cooperation among states and international organizations. (Munzer, Op.Cit, p. 307)

2.2 The Relationship Between Climate Change and Epidemic Spread

The severe impacts of climate change and rising temperatures on Earth's surface due to global warming are a prominent reality, manifesting particularly in:

- Damage to the planet's overall ecosystem through climate disruptions and increased frequency and intensity of extreme weather phenomena such as destructive hurricanes, storms, floods, prolonged droughts, and forest fires.
- Rising sea and ocean levels from polar ice melt and increased acidity, which limits their capacity to produce oxygen and absorb carbon dioxide, thereby exacerbating global temperature rises.

- Impacts on human communities from damage to infrastructure, reduced agricultural production, and shortages of essential natural services.
- Ignition of conflicts and armed disputes in least-developed countries due to worsening poverty from crop failures, desertification, and water scarcity.
- The costs of adapting to climate change and mitigating its effects burden national budgets, especially those of poorer countries, and undermine their social policies. (Bouzkeri and Lihayani, Op.Cit, p. 232)

In addition to these effects, climate change and its consequences have a direct and strong link to the spread of epidemics, evident in:

First: The Impact of Climate Change on Epidemic Infections

Pollution is the environment's primary enemy, as elevated pollution levels cause all environmental damage and interact with rising Earth temperatures to accelerate epidemic spread and intensify their effects on human health. There is a close link between air pollution and public health, with numerous studies revealing complex interactions between air pollution, climatic conditions, and the biological traits of viral infections. Fine particulate matter in the air facilitates virus transmission; in Italy, the most polluted cities recorded higher COVID-19 infection and mortality rates.

Similarly, a Brazilian study showed that lockdowns reduced particulate and gas levels, thereby lowering epidemic spread. Air pollution amplifies respiratory risks, with particles acting as carriers for viruses, as confirmed by prior studies. Conversely, air-cleansing factors like rain, winds, wind speed, temperature, humidity, and fog reduce pollution and thus epidemic transmission, underscoring the strong connection between pollution, climatic conditions, and epidemics. (Munzer, Op.Cit, p. 308)

Second: Global Warming and Its Role in Epidemic Spread

Increased atmospheric CO₂ concentrations raise Earth's temperature, disrupting natural balances and influencing infectious disease dynamics through changes in temperature and precipitation. Historical climate variability analyses (e.g., tree rings) indicate warm, humid conditions in

Central Asia before the Black Death in the 14th century and in years preceding mid-19th century outbreaks. Similarly, elevated temperatures and drought fueled mosquito-borne viruses like Rift Valley fever and chikungunya along Kenya's coast in 2004, which then spread to India and its western islands in 2007, causing the largest recorded chikungunya epidemic.

Climate serves as the primary determinant of epidemic timing, onset, and severity. It revives ancient diseases in new areas due to similar conditions and vectors, hinders the evolution of species that suppress disease-carrying ones, and drives disease carriers to migrate amid climatic instability, heralding "new" epidemics in those regions. (Ibid, p. 309)

3. Mechanisms to Address Climate Change and Epidemic Spread

To counter the phenomena of climate change and epidemic outbreaks—especially in the face of their severe threats, which spare no country worldwide—nations and international organizations, led by the United Nations, have adopted numerous strategies and established diverse mechanisms.

These efforts aim to mitigate climate change and its consequences, particularly in the realm of epidemic spread.

In this context, the first section will address mechanisms to combat climate change, followed by mechanisms to counter epidemic outbreaks in the second section.

3.1 Mechanisms for Addressing Climate Change

Interest in climate change as a pressing global issue began in 1972, when the United Nations held its World Conference in Stockholm, commonly known as the “Earth Summit.” The conference produced the Stockholm Declaration, setting out principles for the protection and enhancement of the human environment, together with an environmental action plan, including a special section on identifying and combating high-risk pollutants. In 1987, the UN General Assembly devoted considerable attention to environmental matters by adopting the “Long-Term Environmental Perspective towards the Year 2000,” and in 1988 the United Nations examined the issues of global warming and ozone-layer depletion in detail, seeking to place them on the global political agenda and in broad international consultations, while the United Nations Environment Program (UNEP) identified the environmental sectors most relevant to climate change. Thus, UN efforts did not stop at convening

international conferences, but extended to the preparation of international agreements, with the 1972 Conference on the Human Environment providing a key opportunity to highlight the problem of climate change among other central environmental issues. (Ramadan, 2025, p. 313)

On this basis, and in order to address the phenomenon of climate change and mitigate its severe impacts—particularly on human health, including its role in the spread of epidemics—the main mechanisms can be outlined as follows:

A. International conferences

Among the most important of these conferences are the following:

1. United Nations Conference on the Human Environment (Stockholm, 1972)

- Strengthening and improving the use of existing climate information and enhancing the capacity to forecast climate change.
- Establishing the World Climate Programme in 1980, including a Climate Research Centre to study human impacts on the climate system.
- Establishing the Intergovernmental Panel on Climate Change (IPCC) in November 1988.
- Confirming in the conference principles the responsibility of States for activities under their jurisdiction or control that may cause environmental damage. (Ibid, pp. 317–318)

2. United Nations Conference on Environment and Development (Rio de Janeiro, 1992)

- Advancing international environmental law through the Rio Declaration and Agenda 21, aiming to establish a fairer relationship between developed industrialized countries and developing countries in terms of environmental protection and sustainable development.
- Structured around a preamble and 27 principles, with principles 1–9 emphasizing the interlinkage between environment and

development, while Principle 25 stresses that peace, development, and environmental protection are interrelated and mutually dependent. (Ibid, p. 319)

3. Third Conference of the Parties to the Kyoto Protocol (December 1998)

- Approval of the “emissions trading” mechanism, allowing States to exchange commitments to reduce emissions among themselves.
- Approval of the “joint implementation” mechanism, enabling a State to obtain certified credits for investments that reduce emissions in another developed country.
- Approval of the “clean development mechanism,” which grants developed countries credits for financing projects that improve energy efficiency or reduce emissions in developing countries.

4. Bali Conference, 2007

- Setting a target of reducing emissions in industrialized countries by 25–40 percent compared with their 1990 levels by 2020, with the European Union expressing its support for this objective.

5. Rio+20 Conference, 2012

- Focusing on the “green economy” within the framework of sustainable development and adopting the document entitled “The Future We Want,” which renewed the commitment to building an environmentally, socially, and economically sustainable future.

6. 21st Conference of the Parties – Paris Agreement, 2015

- One of its main objectives is to limit the increase in global temperature to “well below 2°C above pre-industrial levels,” and to pursue efforts to keep it below 1.5°C.

- The Agreement calls for encouraging international and regional cooperation to strengthen climate action, including adaptation and mitigation, through national plans and joint initiatives. (Ibid, pp. 321–322)

B. International agreements

International agreements are among the most important legal mechanisms used to address climate change. Among the most significant are:

1. United Nations Framework Convention on Climate Change (UNFCCC), 1992

The UNFCCC is considered the cornerstone of the international legal framework on climate change and represents a collective response from the international community to the environmental challenges posed by climate change.

It established the legal basis for international action in this field.

Article 3 of the Convention includes several guiding principles that serve as a reference for Parties when adopting measures to achieve the Convention's objectives and implement its provisions. (Ibid, pp. 330–331)

2. Kyoto Protocol on Climate Change, 1997

The Kyoto Protocol is an addition to the UNFCCC that aims to give the Convention greater legal force and effectiveness. It obliges industrialized countries and economies in transition to reduce greenhouse-gas emissions causing global warming, in accordance with specific, agreed targets. The Protocol calls on ratifying States to adopt policies and measures for climate change mitigation and to submit periodic reports on their progress. (Ibid, p. 340)

3. Paris Agreement on Climate Change, 2015

The Paris Agreement seeks to achieve the following strategic objectives:

- Limiting the rise in global average temperature to “well below 2°C above pre-industrial levels” and pursuing efforts to keep the increase as close as possible to 1.5°C.

- Enhancing the capacity to adapt to the adverse impacts of climate change, strengthening resilience and supporting low-emission sustainable development without threatening food production.
- Aligning financial flows with low-emission, climate-resilient development pathways and scaling up financial and technical support for national climate-related investments. (Paris Agreement on Climate Change, 2015, Article 2)

4. The Role Of The United Nations In Confronting Climate Change

Within the broader effort to address climate change, the United Nations has played a central role through its various organs and bodies:

4.1 The General Assembly

The General Assembly has adopted several key resolutions on climate change, among which the following are particularly important:

- **Resolution 43/53 (December 1988)** entitled “Protection of the Global Climate for Present and Future Generations,” which stated that climate change is a common concern of humanity and called on Governments and international organizations to develop solutions through specific cooperative scientific programmes and research.
- **Resolution 45/212**, which recognized that industrialized countries account for the largest share of polluting emissions, and decided to establish the “Intergovernmental Negotiating Committee” to draw up an international framework convention on climate change.
- **Resolution 66/200**, whose preamble stresses the need to stabilize concentrations of greenhouse gases in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system.
- **Resolution 57/258**, in whose preamble the Assembly noted the “Delhi Ministerial Declaration on Climate Change and Sustainable Development” adopted by the Conference of the Parties to the

Framework Convention in its eighth session. (Maïfi, Op.Cit, pp. 235–236)

4.2 The Economic and Social Council (ECOSOC)

ECOSOC has highlighted its role in confronting climate change by incorporating the issue into its agenda for the first time in 2008. It adopted **Resolution 36/2008**, which called for the involvement of both governmental and non-governmental actors in providing assistance during climate-related disasters and encouraged member States and relevant organizations to support adaptation efforts, including through the development of early-warning systems to reduce the negative impacts of climate change.

4.3 The role of United Nations programs

- **United Nations Environment Program (UNEP)**

Established on 5 July 1972 as a direct outcome of the Stockholm Conference, UNEP has played a leading role in developing international environmental agreements, strengthening environmental science and data, supporting national and regional environmental policy development, and coordinating environmental-development projects. It has also contributed to the elaboration of guidelines and treaties on issues such as international trade in chemicals, transboundary air pollution, and pollution of international waterways. UNEP has issued multiple assessment reports since 2014, the first of which was prepared for the 20th session of the Conference of the Parties (COP 20) in Lima at the request of the Parties to the Framework Convention. (Ibid, p. 236)

- **United Nations Development Program (UNDP)**

Established in 1965, UNDP operates as an executive body under the General Assembly and focuses on sustainable development by supporting countries to build capacities and coordinating the work of UN agencies in the development field. In the area of climate change, UNDP facilitates collective measures to mitigate climate impacts and manage sustainable development, by assisting Governments, coordinating among them, and engaging

non-governmental organizations and research centers in the preparation of national programs and legislation to address or adapt to climate change.

The program collaborates with specialized initiatives such as the “Climate Change and Development Program,” the “Climate Change and Poverty Partnership,” and the “Poverty and Environment Initiative.” It also supports countries in implementing the Bali Strategic Plan for Technology Transfer and capacity building, and integrating climate considerations into national development strategies. (Ibid, pp. 236-238)

5. Mechanisms for Addressing the Spread of Epidemics

In addition to the mechanisms designed to confront climate change—which necessarily contribute to curbing the spread of epidemics, given that one of the most serious consequences of climate change is the acceleration of disease outbreaks—there emerge other mechanisms specifically aimed at preventing the spread of epidemics and reducing their impact to the lowest possible level. These mechanisms operate through the following main channels: (Ibid, p. 238)

5.1 Declaration of a Public Health Emergency

A public health emergency is defined as an official declaration of a health crisis issued by the affected State. It constitutes an exceptional measure taken when a sudden and unexpected threat to public health emerges, such as the abrupt outbreak of a serious or infectious disease. In such cases, the authorities must adopt urgent and temporary measures to maintain control over the epidemic while limiting its impact on the population. (Ben Baghla, 2020, p. 28)

It may also be described as a set of preventive and follow-up actions that may be taken by the government after discussion in a cabinet or equivalent body, when there is a serious risk of the spread of infectious diseases or an epidemic that requires rapid intervention to protect the health and safety of individuals and to preserve the overall public and environmental health system. (Bouada, 2020, p. 124)

Under French law, a public health emergency is understood as an exceptional state of threat that must be formally declared following an assessment by the Minister of Health and recommendations from a scientific committee whose members are appointed jointly by the executive and legislative branches. Such a declaration may entail measures that temporarily restrict certain individual freedoms, such as movement

restrictions or partial or full lockdowns, in order to protect the population from a severe health threat.

On the international level, the **International Health Regulations (2005)** establish the conditions for declaring a public health emergency of international concern. These regulations constitute a binding international legal instrument adopted by 196 States, including all Member States of the World Health Organization (WHO), and aim to assist the international community in preventing and responding to acute public health risks that may cross borders and threaten populations worldwide. (WHO, 2018, p. 15)

The International Health Regulations, adopted in 2005, entered into force on 15 June 2007 and require, for the formal declaration of a public health emergency, the fulfillment of several cumulative conditions:

- The event must be unusual or unexpected.
- It must constitute a serious risk to public health, i.e. a clear threat to human health.
- The disease must be spreading internationally, beyond the borders of a single State.
- It must require a coordinated international response involving national governments and international organizations. (WHO, 2025)

The World Health Organization classifies public health emergencies into four levels according to their impact on health:

- **Unclassified level:** Events that are monitored or followed by the Organization but do not require a formal, broad-scale response.
- **Level 1:** National or limited-scale events with minor health impact, calling for a limited response from the WHO country office or a limited international response from the Organization.
- **Level 2:** National or multi-country events with moderate health impact, requiring a moderate domestic or international response.

- **Level 3:** Events with extensive health impact, requiring a broad-based response from the WHO country office or a large-scale international response coordinated by WHO. (WHO, Ibid)

5.2 The Role of the World Health Organization in Confronting Epidemics

Since its creation, the World Health Organization has brought together leading health experts from around the world to produce international reference materials and to issue technical recommendations intended to improve health outcomes for populations everywhere.

Among these instruments are the **International Classification of Diseases (ICD)**, which enables countries to use a common standard for reporting diseases and monitoring health trends, and the **WHO Model List of Essential Medicines**, which serves as a guide for countries in selecting the core medicines needed for national health systems. (Hassan; 2021, p. 708)

The World Health Organization is the specialized UN agency for health. It came into being in April 1948 when its Constitution was ratified by 26 Member States, and it brings together representatives from all UN Member States in an annual World Health Assembly to set the Organization's policies.

The Organization is headed by a general director, supported by technical, administrative, and operational staff, and its headquarters are located in Geneva, Switzerland. WHO operates worldwide to promote the highest possible level of health for all people, regardless of race, religion, gender, political affiliation, or economic or social status.

Its core mission is to promote health, safeguard the world against public health threats, and serve the most vulnerable. Access to appropriate and affordable health care is regarded by WHO as a human right, and universal health coverage is a central principle guiding its work. (Ibid, pp. 708–709)

In its strategic orientations, the Organization aims to ensure that an additional one billion people benefit from universal health coverage by 2023, against a backdrop where at least half of the world's population still lacks access to essential health services, and where out-of-pocket health expenditures push around 100 million people into poverty every year.

The role of WHO in confronting the spread of various epidemics is manifested through a wide range of activities, including:

- Developing global standards for the quality of air and safe drinking water, as the health risks associated with pollution escalate.
- Producing and prequalifying vaccines and medicines of proven safety and efficacy through its prequalification program.
- Publishing growth charts for children's height and weight, to guide public-health professionals and partners in supporting healthy growth and development.
- Issuing guidelines and recommendations on the prevention and treatment of a broad spectrum of diseases, ranging from asthma and hepatitis to malnutrition, the Zika virus, and the COVID-19 pandemic. (Ibid, pp. 709)

In a major institutional development, the Member States of the World Health Organization adopted, during the 78th World Health Assembly held on 20 May 2025 after three years of intergovernmental negotiations launched in response to the devastating impact of the COVID-19 pandemic, the **International Agreement on Pandemic Prevention, Preparedness, and Response**.

This treaty is designed to strengthen global preparedness, prevention, and response capacities with respect to future pandemics. Dr. Tedros Adhanom Ghebreyesus, WHO's general director, described the agreement as "a triumph for public health, for science, and for multilateral cooperation," emphasizing that it will help the world collectively protect itself from future pandemic threats and represents a recognition that societies, communities, and economies should not be left exposed to losses similar to those experienced during the COVID-19 pandemic. (WHA, 2025)

6.CONCLUSION

It becomes clear from this study that climate change is no longer merely an environmental issue, but has become a direct threat to human health through the acceleration of epidemics and pandemics, especially in the context of pollution and rising global temperatures. The first chapter highlighted the close link between climate and health, while the second chapter highlighted the role of international mechanisms and agreements in

confronting climate change and the centrality of the World Health Organization in combating epidemics.

Accordingly, the conclusion emphasizes that addressing these challenges requires integrating climate and health policies, strengthening international cooperation and legal frameworks, and ensuring the independence and effectiveness of international organizations—especially the World Health Organization—in order to protect humanity from the combined threats of climate change and future pandemics.

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