

THE IMPACT OF CLIMATE CHANGE ON HUMAN RIGHTS

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Abstract

Climate change is a global crisis that transcends environmental boundaries, with profound consequences for human rights. Extreme weather phenomena, sea level rise, desertification and loss of biodiversity not only affect ecosystems, but also the social, economic and political structures of human communities.

This interconnectedness makes it essential to approach climate change not only through an ecological lens, but also by recognizing the impact on the fundamental rights of individuals.

This article provides a detailed analysis of the interaction between climate change and human rights.

Keywords: *human rights, climate change, natural disasters, food insecurity, climate challenges*

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1. Introduction to human rights and climate change

Human rights are universal standards that guarantee the dignity, freedom, equality and security of all individuals, regardless of their national, cultural or religious affiliation (United Nations, n.d.). These include civil and political rights (such as the right to life, to a fair trial, to freedom of expression) as well as economic, social and cultural rights (such as the right to education, health, housing and an adequate standard of living).

According to the Universal Declaration of Human Rights (1948), every person has the right to a healthy environment, implicitly through access to essential resources such as water, food and housing. Climate change threatens the exercise of these fundamental rights through its complex and systemic effects (United Nations, 1948).

Climate change is largely driven by anthropogenic activities, such as fossil fuel burning, deforestation and intensive agriculture, which have led to increased concentrations of greenhouse gases in the atmosphere (Intergovernmental Panel on Climate Change – IPCC, 2021). These changes generate interrelated consequences: increasing global temperature, melting ice caps, changing precipitation regimes and intensifying extreme weather phenomena.

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These phenomena are not only ecological, but also deeply social, having implications for economic systems, population migration and political stability. For example, rising sea levels threaten island states and low-lying coastal areas, forcing the relocation of communities and putting pressure on the already limited resources of host states.

2. The impact of climate change on human rights

2.1. The right to life

The right to life is one of the fundamental rights enshrined in Article 3 of the Universal Declaration of Human Rights (United Nations, 1948) and guaranteed by numerous other international legal instruments, such as the International Covenant on Civil and Political Rights (1966). This right implies the obligation of states to protect the lives of citizens against threats, including those generated by climate change.

Extreme weather events such as hurricanes, floods, heat waves and droughts have caused massive loss of life. According to the World Meteorological Organization, the number of climate-related disasters has tripled in the last five decades, and they have caused more than two million deaths (World Meteorological Organization, 2022).

The intensification of hurricanes and cyclones is caused by rising ocean temperatures. These phenomena have devastating effects on coastal communities, destroying infrastructure and causing deaths from drowning, physical trauma and lack of access to essential services.

According to the World Health Organization, heat waves are responsible for tens of thousands of deaths annually. They especially affect the elderly, children and those with chronic conditions. In 2003, the heat wave in Europe caused about 70,000 deaths (World Health Organization, 2021).

Rising sea levels threaten the lives of millions of people in low-lying coastal regions and small islands. Phenomena such as soil erosion, repeated flooding and salinization of drinking water lead to loss of human life, either directly through the disasters they cause, or indirectly through forced migration and resource conflicts (IPCC, 2021).

Climate change affects global food security, leading to malnutrition and ultimately deaths. According to the Food and Agriculture Organization prolonged droughts and floods reduce agricultural yields, endangering the lives of more than 800 million people who suffer from hunger (Food and Agriculture Organization, 2020).

Extreme weather conditions contribute to conflicts over resources such as water and agricultural land, putting human lives at risk. Forced migration caused by climate change also exposes migrants to additional risks, including violence, human trafficking and poor living conditions (United Nations High Commissioner for Refugees - UNHCR, 2020).

States have an obligation to take proactive measures to protect citizens' lives from the risks associated with climate change, such as, for example:

- Prevention and risk reduction – by reducing greenhouse gas emissions and implementing adaptation policies, states can mitigate the effects of climate change on human life.
- Increasing the resilience of communities – investments in disaster-resistant infrastructure, early warning systems and evacuation plans help reduce loss of life.
- Ensuring access to essential resources – guaranteeing access to drinking water, food and healthcare is essential to protect the right to life in the context of climate change.

2.2. The right to health

The right to health is guaranteed by numerous international instruments, such as the World Health Organization Constitution of 1946 and the International Covenant on Economic, Social and Cultural Rights of 1966. This right involves access to adequate living conditions, quality health services and a healthy environment, necessary to maintain physical and mental well-being (World Health Organization, 2021).

Climate change poses a complex threat to the right to health, both through direct effects, such as exposure to extreme weather events, and indirect effects, including the spread of disease, food insecurity and psychological stress. They affect human health through several interrelated pathways that vary according to geographic regions, the vulnerability of populations, and the capacity of states to respond to these challenges.

Events such as heat waves, hurricanes and floods have direct effects on health. Heat waves lead to dehydration, heat stroke and worsening of cardiovascular and respiratory conditions. The elderly, children and those with chronic diseases are the most vulnerable (World Health Organization, 2021). Floods and hurricanes cause injury, death and favourable conditions for the spread of waterborne diseases such as cholera. Also, the health infrastructure destroyed as a result of these phenomena limits access to essential medical services.

Climate change creates favourable conditions for disease vectors such as mosquitoes to multiply and spread to new regions. Malaria and Dengue – Rising temperatures and changing rainfall patterns allow vectors such as Anopheles and Aedes mosquitoes to colonize areas where these diseases were not endemic. This phenomenon is observed especially in mountainous and temperate regions (IPCC, 2021). Water-borne diseases - Floods and drought contribute to the contamination of water sources, favouring the emergence of diseases such as leptospirosis, cholera and hepatitis A.

Increasing levels of air pollutants, such as ozone and fine particulate matter (PM_{2.5}), exacerbate respiratory and cardiovascular problems. Wildfire outbreaks, frequent in the context of climate change, release large amounts of pollutants that

affect the health of populations in the surrounding areas (World Meteorological Organization, 2022).

Climate change reduces agricultural production through drought, floods and soil degradation, leading to malnutrition, especially among children and pregnant women. According to Food and Agriculture Organization (2020), more than 30% of the world's population is at risk of suffering from nutritional deficiencies due to climate change.

Extreme events and the loss of homes or livelihoods contribute to increased levels of stress, anxiety and depression. Forced migration and food insecurity also intensify psychological trauma, especially among vulnerable groups (UNICEF, 2020).

According to international law, states have the obligation to protect the health of the population by preventing and combating the effects of climate change:

- Investments in resilient health systems – Creating health networks capable of responding to climate disasters, by training medical personnel and ensuring essential resources.
- Reducing pollution – Adopting policies that limit greenhouse gas emissions and improve air quality.
- Health education – Informing the population about the risks associated with climate change and promoting healthy lifestyle practices.
- Equitable access to health services – Guaranteeing access to health services for vulnerable groups, including migrants and isolated communities.

2.3. The right to food

The right to food is recognized as a fundamental right in Article 25 of the Universal Declaration of Human Rights (United Nations, 1948) and in Article 11 of the International Covenant on Economic, Social and Cultural Rights. It involves constant and adequate access to sufficient, nutritious and safe food necessary for an active and healthy life.

In the context of climate change, the realization of this right is deeply threatened by environmental degradation and the effects on agricultural and food systems.

Climate change negatively impacts the availability, accessibility and quality of food, putting global food security at risk. Consequences include declining agricultural yields, loss of biodiversity and rising food prices, which disproportionately affect vulnerable populations.

Extreme weather events such as droughts, floods and heat waves severely affect agricultural productivity. Drought compromises harvests, affecting staple crops such as wheat, corn and rice. According to the Food and Agriculture Organization, the drought is responsible for massive agricultural losses in the most affected regions, such as sub-Saharan Africa and South Asia (Food and Agriculture Organization, 2020). Flooding destroys farmland and erodes soil, reducing its

fertility and ability to support food production. Changes in rainfall and temperature patterns disrupt plant growth cycles and reduce optimal growing periods.

Climate change contributes to the degradation of agricultural land and water resources. Concretely, soil erosion leads to a reduction in its capacity to support crops; sea-level rise and uncontrolled use of water for irrigation contribute to soil salinization, affecting sensitive agricultural crops; declining drinking and irrigation water resources put pressure on farmers, reducing food production.

Reduced food availability causes global prices to rise, which affects poor populations in particular. Fluctuating food prices, exacerbated by extreme weather events, contribute to global food insecurity, affecting hundreds of millions of people (World Bank, 2021).

Climate change affects the nutritional quality of food, leading to increased malnutrition, especially among children. Reduced nutritional value – increasing atmospheric carbon dioxide reduces the protein, iron and zinc content of staple crops such as rice and wheat (IPCC, 2021). Unequal access to food – people in poor or isolated communities are more likely to suffer from malnutrition due to lack of access to diverse and nutritious food.

Climate change contributes to the loss of biodiversity, affecting the availability of traditional and local foods. The shift to industrial monocultures and the loss of agricultural genetic diversity limit the ability of food systems to cope with climate change. Changes in ocean temperature and ocean acidification are reducing fish stocks, affecting communities that depend on fisheries as their main source of food.

According to international law, states have the obligation to guarantee access to food through measures to reduce the impact of climate change on food systems:

- Promoting sustainable agricultural practices – adopting climate-smart agriculture technologies to increase the resilience of agricultural systems.
- Ensuring access to resources – supporting small farmers through access to finance, modern technologies and agricultural education.
- Reducing food waste – implementing policies to reduce food losses in supply chains.
- Guaranteeing fair access to food – ensuring that vulnerable populations receive support through social programs and food aid.

2.4. The right to water

The right to water is recognized as a fundamental right by the United Nations General Assembly in Resolution 64/292 of 2010, which states that access to safe drinking water and sanitation is essential to the realization of other fundamental human rights (United Nations, 2010). It presupposes the accessibility, availability and quality of water, being indispensable for life, health, food and a dignified existence. However, climate change seriously threatens this right by disrupting hydrological cycles, reducing freshwater resources and exacerbating inequalities in access to water.

Climate change has profound effects on water resources, both quantitatively and qualitatively. These effects range from severe droughts to devastating floods, exacerbating already existing water management problems.

Glaciers, which are essential sources of fresh water for millions of people, are rapidly retreating due to rising temperatures. This phenomenon reduces water flows in rivers and lakes, affecting irrigation and drinking water supplies (IPCC, 2021).

The frequency and intensity of droughts have increased, affecting underground water reserves and the soil's ability to retain moisture. Arid and semi-arid regions are most affected, especially in Africa and South Asia.

Flooding caused by extreme rainfall and sea level rise damages drinking water infrastructure, contaminating freshwater sources with salt water and other pollutants. This problem is particularly severe in coastal areas and low-lying islands (World Meteorological Organization, 2022).

In coastal regions, saltwater intrusion into underground aquifers caused by rising sea levels limits access to safe drinking water.

A growing global population and economic development are increasing the demand for water, which is exacerbating the effects of climate change on the limited resource. Agriculture, which consumes about 70% of available fresh water, is particularly vulnerable to these pressures (Food and Agriculture Organization, 2020).

States have the obligation to ensure access to water for all, in accordance with the principles of international law, through measures such as:

- Ensuring accessibility – water must be available at affordable prices for all social categories, without discrimination.
- Sustainable management of water resources – states must invest in resilient infrastructure, promote water-saving technologies and prevent pollution of water sources.
- Climate change adaptation – developing effective adaptation policies such as water storage in natural reservoirs and reforestation to conserve water resources.
- International cooperation – equitable sharing of transboundary water resources is essential to avoid conflicts and ensure resource sustainability (UNESCO, 2020).

2.5. The right to housing

The right to housing is a fundamental right enshrined in Article 25 of the Universal Declaration of Human Rights and Article 11 of the International Covenant on Economic, Social and Cultural Rights. It guarantees the right of all people to have access to adequate housing that ensures a dignified life, safety and protection from external factors (United Nations, 1948; United Nations, 1966).

In the context of climate change, the right to housing is seriously threatened, and climate change will affect both existing infrastructure and the future of housing, generating additional pressure on the most vulnerable communities. Climate change,

through phenomena such as sea level rise, extreme weather events and forced migration, can make the right to housing increasingly difficult for millions of people.

Heavy rainfall, caused by climate change, has increased the frequency and intensity of floods, leading to the destruction of homes and infrastructure in affected regions. These phenomena can particularly affect vulnerable urban areas or coastal areas, where homes are at risk of flooding.

Increasing intensity of storms and hurricanes can cause significant damage to homes, especially in tropical and subtropical regions. Torrential rains and strong winds can destroy roofs, walls and other structures, leaving entire families homeless.

Climate change leads to an increase in the frequency and intensity of heat waves, which endanger not only health, but also the comfort of homes. Poorly insulated housing or lack of cooling infrastructure can contribute to an unbearable living environment during periods of extreme heat.

Sea level rise, caused by melting glaciers and thermal expansion of water, threatens housing in coastal areas and low-lying islands. These areas are at risk of flooding and the people living there may be forced to migrate, thus becoming "climate refugees". Climate migrants face significant difficulties in finding safe shelter, putting their right to housing at risk. Mass migration can also put pressure on housing resources in the regions where these people seek shelter.

Climate change is leading to the degradation of the natural environments that support homes. In many cases, communities settle near natural ecosystems, such as forests or wetlands, that can be destroyed by extreme climate events. Also, soil erosion, water salinization and other phenomena can make land unviable for housing. These processes can force the relocation of entire communities, increasing the risk of marginalization and lack of access to adequate housing.

According to international law, states have the obligation to guarantee access to adequate housing for all citizens, including through specific measures in the context of climate change:

- Promoting climate-resilient construction – investments in housing infrastructure that can withstand extreme events (eg houses that can withstand floods, hurricanes or heat waves) are essential for protecting the right to housing.
- Developing sustainable resettlement solutions – in cases where resettlement is unavoidable, states must ensure sustainable solutions for the migration of populations affected by climate change, providing them with adequate shelter and access to basic services.
- Access to financing and reconstruction – governments must ensure financing mechanisms that allow the reconstruction of homes destroyed by natural disasters and support the affected communities.
- Protection of vulnerable populations – housing policies must be inclusive, ensuring that vulnerable groups such as the poor, women and indigenous communities receive adequate protection and support in the face of the

impacts of climate change on their housing (UN-Habitat, 2020; IPCC, 2022; IDMC, 2021).

2.6. The right to education

The right to education is a fundamental right guaranteed by the Universal Declaration of Human Rights (Article 26) and the International Covenant on Economic, Social and Cultural Rights (Article 13). This right refers to the access of all people to a quality education, which contributes to their integral development and ensures their opportunity to participate actively in society. Education is essential not only for personal development, but also for the economic and social progress of a state (United Nations, 1948; United Nations, 1966).

Climate change can affect the right to education through a number of direct and indirect effects, ranging from the destruction of school infrastructure to the forced migration of families and the increase in the number of children unable to attend school due to extreme weather conditions. These effects can amplify already existing inequalities, disproportionately affecting vulnerable groups, especially children in regions affected by natural disasters.

The phenomenon of climate change manifests itself in the intensification and frequency of natural disasters, such as floods, hurricanes, droughts and forest fires, which can destroy schools and educational infrastructure. In many regions, schools are not built to withstand these extreme phenomena, and damage can cause them to close temporarily or permanently, affecting children's access to education.

For example, in flood-prone regions, schools may become inaccessible due to damaged roads or safety risks, and in regions subject to prolonged droughts, a lack of resources to maintain schools may lead to school closures (UNICEF, 2020). Additionally, in regions affected by fires or storms, schools can be completely destroyed and rebuilding can take a long time, interrupting education for extended periods.

Climate change does not only affect school infrastructure, but also the educational process itself. Extreme weather phenomena can lead to frequent interruptions of school activities. During hurricanes or floods, schools are often closed for longer periods and educational programs can be interrupted, making it impossible for children to learn in a continuous and structured way. This can seriously affect children's academic performance and progress.

Also, in the context of forced migration, families are often forced to leave regions affected by climate disasters and settle elsewhere, often in poor conditions, without adequate access to education. Children who migrate, especially those from rural regions or conflict zones, face significant risks of dropping out of school and limited access to quality education.

Climate change may exacerbate economic inequalities, and states affected by natural disasters may have to redirect financial resources to infrastructure reconstruction or disaster relief. These costs can reduce education budgets, thus affecting the quality and accessibility of education for children. In regions where

economies are already fragile, the impact of climate change can lead to a drop in investment in education, leaving many schools without the resources to operate at appropriate standards.

In regions affected by climate change, children are often forced to drop out of school to help the family survive. For example, in drought-affected agricultural areas, children may be forced to participate in agricultural labour, and in flood-affected coastal regions, families may have to move frequently, making it impossible to continue education in a stable location. In some cases, children may be forced to drop out of school to migrate to other areas or to work to contribute to the family income (UNICEF, 2020).

To protect the right to education in the face of climate change, policies and measures are needed that address both the direct impact on educational infrastructure and equitable access to education. These measures include:

- Building climate-resilient schools – it is essential to invest in educational infrastructures that are able to withstand extreme phenomena, such as floods or storms, and that are accessible to all children, including those with disabilities.
- Contingency plans for education – states must develop emergency plans for education that guarantee the continuity of the educational process during and after climate disasters. These plans may include temporary schools or digital education.
- Promoting climate change education – climate change education should be integrated into school curricula to help youth understand environmental challenges and solutions.
- Social protection systems for vulnerable families – implementation of social protection systems to help families impoverished by climate change to ensure the education of their children, including by allocating scholarships or financial support for schooling.

Conclusions

Climate change is not only an ecological crisis, but also a humanitarian and human rights one. Protecting the environment is inseparable from protecting fundamental rights, and addressing these issues requires global cooperation based on justice, equity and solidarity. In this context, each of us has an important role to play, either through individual actions or through pressure on political leaders to implement sustainable policies.

The right to life is one of the fundamental rights most affected by the climate crisis. Natural disasters, food insecurity and related conflicts undermine states' ability to protect their citizens. It is essential that governments, international organizations and civil society work together to reduce the effects of climate change and protect this fundamental right.

Climate change is a major challenge to the right to health, with multiple and interconnected effects on human well-being. Preventing and mitigating these effects requires a holistic approach, integrating ambitious climate policies and effective public health measures. Only through global collaboration and political commitment can this fundamental right be protected.

The right to food is closely related to food security and environmental protection. Climate change poses a significant threat to the realization of this fundamental right, especially for the most vulnerable. Addressing these challenges requires coordinated global policies and tailored local measures to ensure access to adequate and safe food for all.

The right to water is essential for the realization of other fundamental rights, but is threatened by the complex effects of climate change. Ensuring this right requires coordinated action at the global, national and local levels, including effective adaptation policies, international cooperation and investment in sustainable infrastructure.

The right to food is closely related to food security and environmental protection. Climate change poses a significant threat to the realization of this fundamental right, especially for the most vulnerable. Addressing these challenges requires coordinated global policies and tailored local measures to ensure access to adequate and safe food for all.

The right to housing is an essential right, but it is increasingly difficult to achieve in the context of climate change. The effects of climate change, such as extreme events, sea level rise and forced migration, seriously threaten the safety and stability of housing, disproportionately affecting vulnerable groups. Protecting this right requires clear policies, adaptation measures and investment in resilient infrastructure to ensure access to safe and adequate housing for all.

The right to education is essential for the personal and social development of individuals, but climate change threatens the realization of this right for millions of children. Through their direct effects on educational infrastructure and children's living conditions, climate change can lead to interrupted education, school dropout and inequalities in access to education. It is essential that governments and international organizations adopt protection and adaptation measures to ensure the continuity and accessibility of education, even in the face of these major climate challenges.

Protecting the environment is inseparable from protecting fundamental human rights. Tackling climate change cannot be achieved without considering its impact on individuals and communities. In this regard, an integrated approach based on climate justice and human rights is essential.

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