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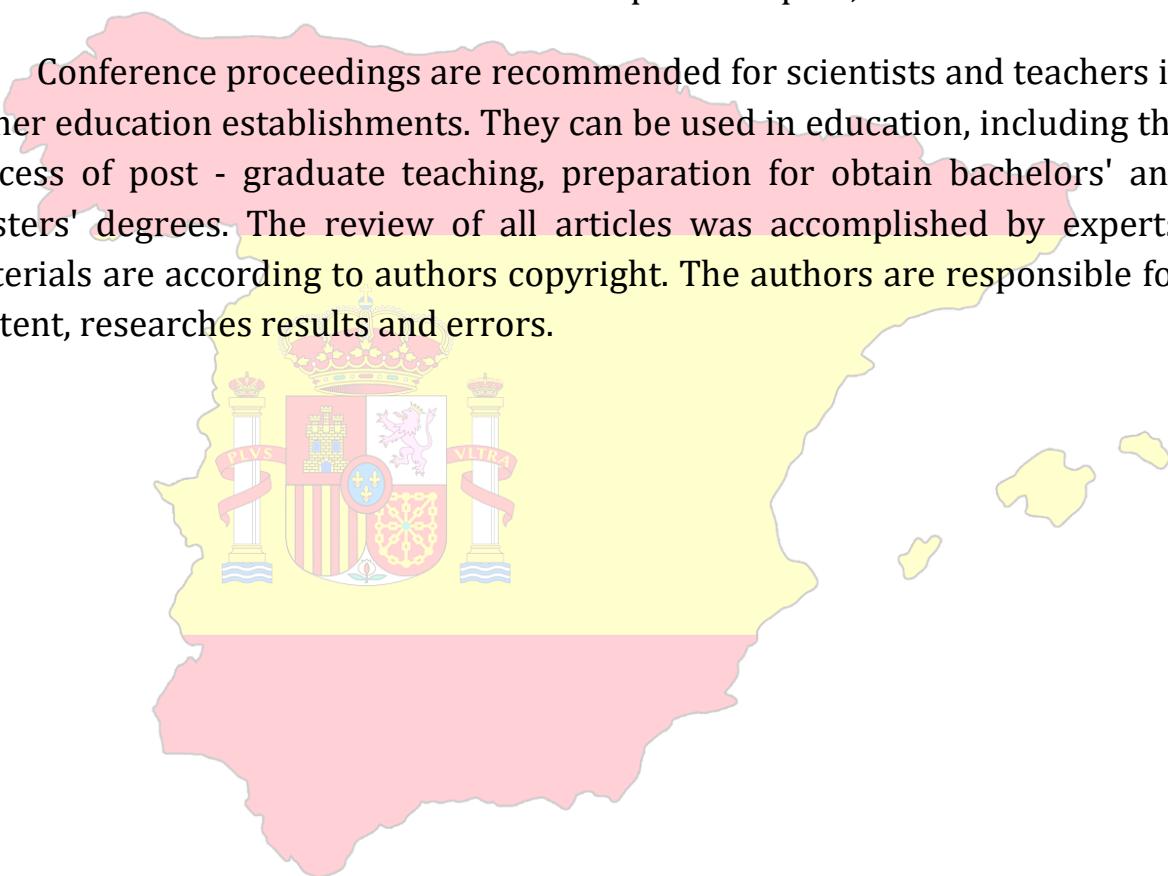


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Environmental changes

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Annotatsiya: Ushbu maqola global ekologik o'zgarishlar, ularning sabab va oqibatlari, shuningdek, insoniyatning ularga moslashuvi va oldini olish strategiyalarini tahlil qiladi. Maqolada iqlim o'zgarishi, biologik xilma-xillikning yo'qolishi, suv resurslari tanqisligi va antropogen omillarning ta'siri keng yoritilgan.

Annotation: This article analyzes global environmental changes, their causes and consequences, as well as humanity's strategies for adaptation and prevention. The article thoroughly examines climate change, biodiversity loss, water scarcity, and the impact of anthropogenic factors.

Keywords: environmental changes, climate change, biodiversity, sustainability, pollution, global warming

Environmental changes have become one of the most urgent global issues of the 21st century. The rapid rise of industrialization, urbanization, and technological development has brought unprecedented pressure on the planet's ecosystems. These changes are not only altering natural landscapes but also reshaping economic systems, human health, and global security. Understanding environmental changes is essential for building sustainable policies and ensuring a safe future for coming generations. Environmental changes can be classified into natural and anthropogenic (human-induced) forms. Natural changes include volcanic eruptions, earthquakes, natural climate cycles, and other geophysical processes. While these natural events have shaped Earth for millions of years, the rate and scale of changes observed today are strongly linked to human activities.

Climate change is perhaps the most widely discussed environmental issue.

The increase in greenhouse gas emissions—particularly carbon dioxide and methane—has led to global warming. The average global temperature has risen significantly, causing melting glaciers, rising sea levels, and extreme weather events. Scientists warn that if current trends continue, many coastal cities may become uninhabitable within decades.

2. Biodiversity Loss. The extinction rate of plant and animal species has accelerated due to deforestation, pollution, illegal hunting, and habitat destruction. Biodiversity ensures the stability of ecosystems, providing essential services such as pollination, clean air, and fertile soil. Loss of biodiversity weakens the resilience of ecosystems, making them more vulnerable to environmental stressors.

3. Pollution. Pollution comes in various forms: air, water, soil, and noise pollution. Air pollution, caused mainly by fossil fuels, is responsible for millions

of premature deaths each year. Water pollution from industrial waste, agricultural chemicals, and plastics has contaminated rivers and oceans, threatening marine life. Soil pollution disrupts agricultural productivity and poses risks to food security.

4. Water Scarcity. Freshwater resources are becoming increasingly limited. Climate change has altered rainfall patterns, causing prolonged droughts in some regions and severe flooding in others. Rapid population growth and unsustainable water use have intensified the crisis. Many regions, especially in Africa and Central Asia, are already facing severe water shortages.

5. Deforestation. Forests play a crucial role in absorbing carbon dioxide, regulating climate, and supporting biodiversity. However, large-scale deforestation for agriculture, logging, and urban expansion continues at an alarming rate. The destruction of rainforests such as the Amazon has global implications, accelerating climate change and reducing ecological stability. Environmental changes are driven by a combination of human activities and natural processes, but in recent decades, human influence has become the dominant force behind global ecological disruption. Rapid industrialization and the excessive consumption of natural resources have increased greenhouse gas emissions, leading to climate change and global warming. Urbanization and population growth place immense pressure on land, water, and energy supplies, resulting in deforestation, habitat destruction, and the loss of biodiversity. Unsustainable agricultural practices—such as overuse of fertilizers, pesticides, and large-scale monoculture farming—degrade soil quality and contaminate water sources. Pollution from factories, vehicles, and plastic waste further harms air, water, and marine ecosystems. Additionally, the burning of fossil fuels, mining, and intensive manufacturing accelerate environmental degradation, while poor waste management and over-exploitation of freshwater sources contribute to water scarcity. Together, these interconnected factors push ecosystems beyond their natural limits, causing widespread environmental instability and threatening the well-being of both current and future generations. These factors have intensified environmental degradation, pushing ecosystems beyond their natural limits.

Environmental changes have far-reaching and interconnected consequences that affect ecosystems, human health, economies, and global stability. One of the most severe outcomes is the increased frequency of extreme weather events such as heatwaves, floods, droughts, hurricanes, and wildfires, which destroy infrastructure, displace communities, and cause large-scale economic losses. Rising global temperatures contribute to the melting of glaciers and the rise of sea levels, threatening coastal cities and small island nations with flooding and land loss. Biodiversity continues to decline as species lose their habitats, disrupting ecological balance and weakening natural systems that provide essential services like pollination, water purification, and soil fertility. Human health is also at risk, as polluted air and water lead to respiratory



diseases, cardiovascular problems, and waterborne illnesses, while climate change facilitates the spread of infectious diseases such as malaria and dengue. Agriculture is heavily affected by unpredictable weather patterns, reduced soil fertility, and water scarcity, resulting in lower crop yields and growing food insecurity in vulnerable regions. Social and economic inequalities worsen as poorer communities face higher exposure to environmental hazards and have fewer resources to adapt. In the long term, resource depletion, environmental degradation, and climate-related disasters can trigger mass migration, intensify conflicts over land and water, and threaten global peace and security. Together, these consequences highlight the urgent need for decisive and coordinated environmental action.

Addressing environmental changes requires a comprehensive and coordinated global effort that focuses on both mitigation and adaptation strategies. One of the most effective solutions is transitioning from fossil fuels to renewable energy sources such as solar, wind, and hydropower, which significantly reduce greenhouse gas emissions. Strengthening environmental policies, enforcing pollution control regulations, and promoting sustainable industrial practices help limit the release of harmful chemicals into the air, soil, and water. Protecting and restoring forests, wetlands, and natural habitats is essential for enhancing biodiversity and improving the planet's ability to absorb carbon dioxide. Sustainable agricultural methods—such as organic farming, crop rotation, efficient irrigation, and reduced pesticide use—help preserve soil health and protect water resources. Improving waste management through recycling, reducing plastic consumption, and encouraging circular economy models can greatly decrease pollution. On a societal level, raising environmental awareness, expanding environmental education, and supporting community-led conservation projects build long-term ecological responsibility. Governments must also invest in climate-resilient infrastructure, advanced water management systems, and early-warning technologies to strengthen adaptation to extreme weather events. By combining technological innovation, strong policies, and responsible human behavior, the world can slow environmental degradation and create a more sustainable future for generations to come.

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