Journal of Pollution Effects & Control

OPEN ACCESS Freely available online

Mini Review

Environmental Risks from Pollution and Climate Change: An Updated Review

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ABSTRACT

Climate change expected for the next century could occur in an ecosystem already stressed by UV-B amplification, air pollution, and rising nutrient fluxes. We investigated the relationships among these many environmental challenges by focusing on specific habitats, temperate zone forests, freshwater lakes, and estuaries. The increase in oxidant levels across the lower atmosphere and hydrosphere is a significant chemical consequence of atmospheric change. These changes may result in net nutrient transfer from land to coastal ocean, resulting in forest degradation and coastal eutrophication. Local adjustments may already be occurring, but the synergistic nature of the pressures threatens to speed up the process over the next few decades. Aside from any direct effects of climate change, the worsening of current environmental problems is a significant indirect effect.

INTRODUCTION

Climate change and other environmental changes will interact at a number of locations in the tightly connected biogeochemical system that includes the atmosphere and the earth's surface. Aside from whatever difficulty humans or natural resources may face in adapting to the direct effects of climate change, the amplification of certain current pollution problems is a significant indirect effect of a warmer environment. Atmospheric chlorine will decrease stratospheric ozone, a process that could be accelerated by the global warming effect. Increased UV flux reaching the surface is possible due to ozone depletion. Increases in ultraviolet radiation, as well as climatic change, boost oxidant and acidity levels at ground level. Forest and watershed damage is caused by acid deposition and oxidants. Forest damage due to climate change, increased UV radiation, and air pollution may be a problem. Increased eutrophication of fresh and coastal waterways, as well as direct eutrophication climate change's impact on these seas [1].

Climate Change and Ozone Depletion in the Stratosphere

The amounts of trace gases in the atmosphere are rapidly changing. Since the pre-industrial era, atmospheric carbon dioxide concentrations have increased by around 25% [2]. Methane and nitrous oxide concentrations have recently been growing at rates of roughly 1% yr -1 [3] and 0.3 percent yr -1 [4], respectively. Although ozone depletion in the stratosphere is largely distinct from greenhouse gas accumulation in the lower atmosphere, there are significant connections between the two processes [5,6]. Several greenhouse gases, particularly chlorofluorocarbons, also degrade the environment. Ozone is a greenhouse gas in and of itself. As a result, ozone depletion has resulted in Since the 1970s, the stratosphere has been cooling. Lower-level ozone depletion. Some of the favorable radiative force may have been neutralized by the stratosphere occurred in the last several decades [7].

Climate Change and Tropospheric Oxidants

The increase in upper tropospheric ozone, which was observed at Although the positive radiative forcing (warming) in solar and longwave radiation is caused by Hohenpeissenberg and Payerne, The FT and FD treatments have distinct magnitudes. According to the FT approach, the minor decadal rise in tropospheric ozone at Payerne of 5% (summer) promotes only a small positive radiative forcing (warming) and even a negative forcing (cooling) while using the FD technique [8].

Temperate Forests and Climate Change

Many of these delicate species can be harmed by changes in temperature and water availability. Trees are vulnerable to frost damage and death during periods of abnormally mild temperatures followed by extreme freezing episodes [9].

Acidification, Climate Change, and Freshwater Systems

Because I many species within these fragmented habitats have limited abilities to disperse as the environment changes; (ii) water temperature and availability are climate-dependent; and (iii) many systems are already exposed to numerous anthropogenic stressors, fresh waters are particularly vulnerable to climate

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Received: July 12, 2021; **Accepted:** July 25, 2021; **Published:** August 01, 2021

Citation: Gandhi M (2021). Environmental Risks from Pollution and Climate Change: An Updated Review. J Pollut Eff Cont 9:297. doi: 10.35248/2375-4397.21.9.297.

change. Individuals or species populations have been the focus of most climate change studies to date, rather than higher levels of organization (i.e. communities, food webs, ecosystems) [10].

Areas on the Coast

Extreme weather events are having a severe and negative influence on both natural ecosystems and human systems, with socioeconomic production suffering as a result. Furthermore, coastal cities are already at risk from climate-change-related sea-level rise, which poses a severe and multi-dimensional threat. Coastal cities are also particularly vulnerable to human climate change and have the smallest adaptive potential. However, with the expanding population and economic importance of coastal cities, exposure to climate threats is anticipated to increase [11,12].

CONCLUSION

To tackle the issue of climate change, we will require a combination of adaptation and mitigation efforts, but this will be hampered by a lack of information on the costs and benefits of adaptation. Thus, developing a portfolio or mix of policies that includes mitigation, adaptation, technological development (to improve both adaptation and mitigation), and research is critical (on climate science, impacts, adaptation and mitigation). However, assessing the benefits of various strategy combinations is currently hampered by a lack of data on potential impact costs, a lack of comparable data on the damage that could be avoided through adaptation, and, most importantly, a lack of understanding of how these impacts will vary across different socioeconomic development pathways. It's critical that these knowledge gaps are swiftly filled.

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