

# Will there be an improvement of ecosystems in the world post-pandemic?

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## Abstract

**Purpose/Background.** Inconsiderate human activities have led to ecological imbalances, and pollution and degradation of our natural environment. However, for humans to continue to exist on Earth in the future and for sustainable development to occur, we must preserve our ecosystems.

**Methodology/Approach.** This paper examines some ethical considerations that are important to human interaction with the environment, by identifying conditions that existed before the Covid-19 pandemic.

**Results/Findings.** The world is currently challenged by global inequality and global climate change, both of which adversely affect our living environment and very sensitive ecological systems. The physical confinement and social distancing measures imposed by governments worldwide during the Covid-19 pandemic produced a reduction in human interactions and activities which had a positive impact on the ecological environments around the world.

**Discussion/Conclusions/Contributions.** As governments release their citizens from the tight restrictions, and people return to their customary activities, we can expect a return to pollution of our environments. This will occur unless, during the period of 'lockdown', humans had become more aware of the harmful effects some of their activities were having on the ecosystem and had been motivated to minimize these activities.

**Keywords:** air pollution, biodiversity, bioethics, climate change, ecosystems, environmental pollution, human activities, marine environment, pandemics, plastics, public health, sustainable development.



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### Resumen

**Propósito/Contexto.** Las actividades humanas desconsideradas han llevado a desequilibrios ecológicos y a la contaminación y degradación de nuestro entorno natural, sin embargo, para que los seres humanos sigan existiendo en la Tierra en el futuro y para que se produzca un desarrollo sostenible, debemos preservar nuestros ecosistemas.

**Metodología/Enfoque.** Este documento examina algunas consideraciones éticas que son importantes para la interacción humana con el medio ambiente, al identificar las condiciones que existían antes de la pandemia de COVID-19.

**Resultados/Hallazgos.** Actualmente, el mundo enfrenta el desafío de la desigualdad global y el cambio climático global, los cuales afectan negativamente nuestro entorno de vida y sistemas ecológicos muy sensibles. Las medidas de confinamiento físico y distanciamiento social impuestas por los gobiernos de todo el mundo durante la pandemia de COVID-19 produjeron una reducción en las interacciones y actividades humanas que tuvieron un impacto positivo en los entornos ecológicos de todo el mundo.

**Discusión/Conclusiones/Contribuciones.** A medida que los gobiernos liberan a sus ciudadanos de las estrictas restricciones y las personas regresan a sus actividades habituales, podemos esperar un regreso a la contaminación de nuestro medioambiente. Esto ocurrirá a menos que, durante el período de "bloqueo", los humanos se hayan vuelto más conscientes de los efectos nocivos que algunas de sus actividades tenían en el ecosistema y se hayan motivado a minimizar estas actividades.

**Palabras clave:** contaminación del aire, biodiversidad, bioética, cambio climático, ecosistemas, contaminación ambiental, actividades humanas, medio marino, pandemias, plásticos, salud pública, desarrollo sostenible.

### Resumo

**Finalidade/Contexto.** Atividades humanas imprudentes levaram a desequilíbrios ecológicos, poluição e degradação do nosso ambiente natural. No entanto, para que os humanos continuem a existir na Terra no futuro e para que o desenvolvimento sustentável ocorra, devemos preservar nossos ecossistemas.

**Metodologia/Abordagem.** Este artigo examina algumas considerações éticas que são importantes para a interação humana com o meio ambiente, identificando as condições que existiam antes da pandemia de Covid-19.

**Resultados/Descobertas.** O mundo é atualmente desafiado pela desigualdade global e pelas mudanças climáticas globais, que afetam negativamente nosso ambiente de vida e sistemas ecológicos muito sensíveis. As medidas de confinamento físico e distanciamento social impostas pelos governos em todo o mundo durante a pandemia de Covid-19 produziram uma redução nas interações e atividades humanas que tiveram um impacto positivo nos ambientes ecológicos em todo o mundo.

**Discussão/Conclusões/Contribuições.** À medida que os governos liberam seus cidadãos das rígidas restrições e as pessoas retornam às suas atividades habituais, podemos esperar um retorno à poluição de nossos ambientes. Isso ocorrerá a menos que, durante o período de 'lockdown', os humanos tenham se tornado mais conscientes dos efeitos nocivos que algumas de suas atividades estavam causando no ecossistema e tenham sido motivados a minimizar essas atividades.

**Palavras-chave:** Poluição do ar, biodiversidade, bioética, mudanças climáticas, ecossistemas, poluição ambiental, atividades humanas, ambiente marinho, pandemias, plásticos, saúde pública, desenvolvimento sustentável.

## Introduction

Ecosystems around the world include many natural resources that we often take for granted, such as the air we breathe, the soil and earth we walk on and the plants and trees it supports, the water we drink and the sustenance it provides for all living creatures, our large forests and all the animals to be found within, as well as materials and extracts found naturally in the ground such as fossil fuels and minerals.

For several years, the excessive consumption and waste of clean water, increased extraction of mineral resources and industrial raw materials such as the various metal ores needed by the manufacturing industry, and inconsiderate human activities have led to ecological imbalances and sometimes increased pollution of our natural environment as well as increased degradation (Hanjra and Qureshi 2010). More and more plastic waste has been found floating in the seas and oceans of the world, and spillage of oil and other contaminants periodically occur at mining sites where oil and mineral ores are extracted from the ground (Ormaza-Gonzales, Castro-Rodas and Stratham 2021). Nuclear waste and improper disposal add to the pollution.

All these have been posing threats to the various ecosystems around the world. However, for humans to continue to exist on the Earth in the future and for sustainable development to occur, we must preserve our ecosystems since human life will find it extremely difficult to exist in an environment of polluted air and water, poor carbon dioxide/oxygen exchange provided by trees and forests, and continuing harm to the biodiversity existing in the food chain across the Earth.

This paper examines some ethical considerations important to human interaction with the environment and recommends steps that must be taken to bring about improvements and the protection of our ecosystems.

## Ethics and ecosystems

Bioethics is closely connected with humans and the environment. Historically, there has always been human relationships with the Earth, but it is only more recently that we have developed a specific ethical focus in how we relate to our environment and how our human activity may degrade our environment. Consequently, we have now begun to use ethical principles in our moral reasoning about the environment and the balance of our ecosystems (Aarons 2019).

Further, critical to all this are considerations of the ethical dimensions of sustainability, environmental justice, environmental leadership, and the role of science in environmental ethics. These concepts carry an individual as well as a public health perspective (Aarons 2019; Schröder-Bäck *et al.* 2014), since when we focus on global environmental issues, we adopt the notion that caring for and maintaining the environment and its ecological balance should be perceived as a 'public good' for our own survival.

## The eco-system pre-Covid-19 pandemic

Prior to the pandemic, the ecosystems of the world were challenged from two (2) main sources, global inequality and global climate change (Moriarty and Honnery 2020). Despite the United Nations setting several sustainable development goals to be achieved by all nations by 2030, in 2019 –before the Covid-19 pandemic– the world was not on target to achieve many of the development goals. Unfortunately, the coronavirus pandemic of 2020 has made their attainment even less likely.

There is now almost unanimous acknowledgement and agreement among the scientific community that our climate is changing in ways that are adversely affecting our living environment (Aarons 2019). A lot of these changes have been deemed irreversible and need immediate attention to reduce long-lasting effects. Climate change poses a distinct threat to global food security, our very sensitive ecological systems, and our natural environment due to its effect on water supply and water demand, its impacts on crop productivity, impacts on food supply, and the high costs of adaptation to climate change (Hanjra and Qureshi 2010).

Climate change affects agriculture and food security by altering the spatial and time distribution of rainfall, and the availability of water, land, capital, biodiversity, and terrestrial resources. Deforestation, man's burning of logs and trees to make coal for sale to eke out a marginal existence, his building homes and doing small farming on riverbanks and in flood-prone areas, as well as burning rubbish and producing waste that pollute the atmosphere and our environment are some examples of harmful effects that are in the control of man to execute in what should be an ecologically sustainable way (Aarons 2019).

## The Covid-19 pandemic

The Covid-19 pandemic caused all governments worldwide to impose physical confinement and social distancing measures (Ormaza-Gonzales *et al.* 2021). The consequential reduction in business and leisure activities on land, on beaches and in ports reduced direct as well as indirect contamination from refuse and waste-paper and paper products, plastics, hydrocarbon spillage, microbiological loads, as well as noise pollution. Happily, this has led to a temporary improvement in environmental conditions, and places like beaches have experienced conditions that are closer to maritime protected areas.

With the reduction of human activity along the coasts and similar places, there was a consequential reduction in plastics and garbage along beach fronts, as well as a consequential improvement in the immediate sea environment for coastal fish, large marine organisms, humpback whales, dolphins, manta rays, turtles, sea lions, and sharks (Ormaza-Gonzales *et al.* 2021). Further, the quality of the water and the coastal environment due to the absence of tourists and the reduction in human traffic was vastly improved.

Covid-19 has impacted not only the health of citizens, but also various elements that are a part of our society, including our living environments as well as our ecosystems. Consequently, our living in the future will need to be flexible and agile to facilitate our adaptation to the various changes that will occur because of the needs of society's various populations.

So, for instance, we have seen where digital technologies have played an important part in society in assisting various sectors within the community during the Covid-19 pandemic, and so could be increasingly used in response to various societal challenges in the future (Marston, Shore and White 2020). Such measures will be increasingly important as society's population ages further, although the extent of this possibility will vary across various countries and jurisdictions.

The sharp decline in human activities during the Covid-19 pandemic has therefore had a positive impact on the ecological environments in virtually all countries of the world, with reduced air pollution, and the physical environment becoming more natural and healthier. This notwithstanding, there has been a negative impact on the ecology caused by an increased production of medical and plastic waste because of the requisite health care that was needed during the pandemic (Brontowiyono 2021).

## The world post-pandemic

As governments around the world release their citizens from the tight restrictions on their liberty of movement with a return to some levels of the normality that existed before the Covid-19 pandemic, we can expect that some level of pollution of our environments, including rivers, seas and oceans will return.

Global inequality will maintain the status of large groups of vulnerable people (Ahmed and Hens 2021) whose marginal existence in some societies contribute to pollution, since they often cannot afford or do not have access to biodegradable products, and hence significantly contribute to the discarding of plastic and other products in their immediate environs that are harmful to the natural environment

Further, increased human activity post-pandemic and the increased availability of labour and factory workers once more will result in the 'resurrection' of factories and similar work environments that result in atmospheric pollution. The reality is that increased human-to-human interactions to coincide with the same levels of activities that existed pre-pandemic is what most peoples of the world are hoping for!

## Conclusions

So –we ask the question– will there be an improvement of ecosystems in the world once the pandemic subsides? What we are in fact asking is whether humans –during the time of the 'lockdown' as a result of the pandemic– would have become more aware of and concerned about their polluting their environments, and would have made personal or collective resolutions to reduce their polluting and improve their environments going forward.

Alas, I say no, if only because the 'voice pops' heard commonly in most societies is a simply longing for life to return to 'normal.' A return to life as it existed before the pandemic would mean we would continue to see abuse of the natural systems that should produce clean drinking water and ensure the appropriate decomposition of waste.

To effect improvement in our ecosystems, firstly we would need to see strategies that would reduce smoke and dust in the air, improve the quality of groundwater, and forest management that includes an effort to 'kick-start' commercial re-forestation.

We would need eco-innovation where, for example, replacement of plastics is done by biodegradable and consumable products. We would need to plant more trees, and –in keeping with many of the development goals– societies would have to move towards deep reductions in the use of fossil fuels as energy sources, reduce the use of coal-powered plants and factories, and bring about major cuts in air travel and car and motorbike usage (Barbarossa, 2020), choosing instead more mass public transportation systems, as well as the imposition of a global carbon tax.

Conserving water and keeping it clean, switching to renewable energy sources, improving energy production by efficient technology that uses renewable energy, and creating awareness in people about cleanliness and proper sanitation would also be needed.

Urgent attention to correct the process of deforestation and devastation that is occurring in our environment, the maintenance of biodiversity for sustainable development and the protection of our natural environment would all be needed in this effort if we are to slow down the process of degradation of our ecosystems.

Finally, governments would need a community-based participatory approach to protect the natural environment, its ecosystems, and its biodiversity. We should not have to focus on protecting our environment; we should aim to have a world where the environment will not need protecting!

## Conflicts of interest

I hereby declare that I have no perceived conflict of interest.

## Founding

I hereby declare that I have no financial interest or benefits to be derived from this article, and there are no financial considerations. I also did not receive resources for the writing or publication of this manuscript.

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