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Environment, Health and Sustainable Development: A Critical Review

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Abstract
Wherever people live and work is called their environment. The environment encompasses people's surroundings and the circumstances relating to their surroundings, so it includes physical, biological, social and cultural factors. People constantly interact with their environment; it helps shape their lives, and it affects their health. Recent improvements in the health of urban, industrial populations owe more to social and environmental improvements and dietary changes than to medical treatments. This makes the study of issues surrounding environmental health all the more relevant. Environmental health is part of public health concerned with assessing and understanding the impact of the environment on people and of people on the environment. The aim of this paper is to encourage thinking about how environmental health is relevant to you and your local area. This paper also describes the general relationship between the environment and people's health. The objective of this paper is to demonstrate the links between health, environment and sustainable development.

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Introduction

The term environment encompasses all elements that surround us. The environmental elements comprise air, water, sunlight, trees, animals, and humans. The term "environment" encompasses all living and non-living entities and their impact on human life. Plants, animals, birds, and humans represent living organisms, or biotic components, whereas non-living entities, or abiotic components, encompass elements such as water, land, sunlight, rocks, and air. The environment provides numerous benefits that cannot be fully reciprocated within a single lifetime (MacDonald, 2003) [6]. The environment and humanity exhibit interdependence. Human existence is shaped by environmental factors, while simultaneously, humans modify their surroundings through various processes, including activity, growth, death, and decay. Early humans resided in closer proximity to their natural surroundings. Consequently, they experienced increased longevity and improved health. Currently, we are encompassed by the artificial environment that we have constructed for ourselves. A clean environment is crucial for human health and well-being. It is a fundamental requirement of contemporary society, characterised by industrialisation, urban expansion, and a rising number of transportation vehicles (Matero, 2020) [7].

India launched the Swachh Bharat Abhiyan (Clean India Campaign) on October 2, 2014, aimed at cleaning its roads and urban areas. Individuals can commit to maintaining a clean society by refraining from littering and notifying relevant authorities upon encountering waste or garbage. Maximise the efficient utilisation of electricity within residential and communal settings. World Environment Day, celebrated annually on June 5, represents a significant initiative by the United Nations aimed at mitigating environmental pollution.

The objective is to enhance awareness and promote collaboration among governments, individuals, and societies to eradicate plastic usage in daily life and address other contributors to environmental pollution, while also implementing necessary preventive measures. The latest World Environment Day occurred in India on June 5, 2018, focussing on the theme "Beat Plastic Pollution" (Shekhar, 2023) [10].

Health Risks and the Environment-Historical Considerations

Placing these linkages into a historical context is beneficial for understanding the relationship between the environment and health in modern society. It has required some time for individuals to comprehend the connection between health and the environment.

Humans unequivocally impact the world ecosystem. An ecosystem is a mutually reliant system of living organisms and the physical, biological, and chemical conditions that sustain them. Unlike other components of ecosystems, humans have undergone cultural evolution, granting them the unique capacity to modify and manipulate their environment instead of being influenced by it. Some advancement have yielded benefits, including improved access to housing, food, and water; however, others have resulted in detrimental effects, such as air and water pollution, or pose catastrophic risks, exemplified by the threat of nuclear conflict (Kabat, 2008) [5]. Significant portions of the world population today benefit from advancements in healthcare and contraception due to technology and scientific research. Numerous diseases that were formerly fatal or significantly incapacitating have been eradicated or managed. Conversely, afflictions linked to affluence, such as cancer and cardiovascular illness, presently impact individuals in the industrialised world.

Environmental hazards stemming from biological, chemical, and physical variables have consistently been associated with human development. Industrial pollution is an enduring issue; pollutant poisoning of manufacturing and industrial sites has existed since antiquity. Lead poisoning persists in the vicinity of historic metal smelters, and the establishment of tanneries has long been banned in certain regions due to their offensive scent and significant water contamination. In the early stages of industrial development, pollution was often restricted to the surrounding area, indicating that the primary environmental and health concern was the occupational health and safety of persons directly engaged in production (Heng, 2017) [2].

Understanding the Relationship between Health and Environment

The connection between illness and the environment is the subject of several hypotheses. In the past, weather phenomena like season changes, storms, and eclipses were blamed for sickness. In many cultures, foul, tainted, or contaminated air from graves, swamps, marshes, and other sources was linked to sickness. Although there are differences between cultures in terms of the exact environmental factors that affect sickness, many civilizations have acknowledged that there is some sort of connection between the two (Howe, 1997) [3]. For instance, according to Zulus, residents of one location are accustomed to their surroundings, but if they relocate to a completely other region, they would become unwell because they would not be accustomed to the changing atmospheric and environmental circumstances (Ngubane, 1977) [8]. A migrant may be exposed to new diseases or different strains of existing diseases, such as malaria, after moving to a new location.

The way a society responds to health promotion programmes will depend on how it perceives the connection between sickness and the environment. For instance, it will be challenging to persuade a community that eliminating standing water where insects may thrive is a necessary step for disease eradication if they believe that climatic circumstances like poor air are what cause dengue fever, an insect-borne disease. The cultural and social context in which environmental health is to be applied, in addition to its theory and practise, must be understood by the health practitioner.

Health, Environment and Development

The health of those who live there is significantly influenced by the environment's quality as well as any current economic trends. However, policymaking and development planning have not historically prioritised environmental health challenges. This is true despite the fact that the biggest health issues in the world are caused by environmental biological agents including parasites, bacteria found in water, and mosquitoes. Millions of people (typically babies and children) in the poor world get sick or die young as a result of these conditions, which include malaria, intestinal parasites, and diarrheal disease. Additionally, millions more diseases, injuries, and fatalities are caused by chemicals like pesticides and cleaning products as well as physical dangers in the home, workplace, and environment. Environment and health are not separate things; they are impacted by outside causes like population pressure and poverty. People, governments, and other organisations must learn to balance how human activity and the environment interact if the world's population is to enjoy excellent health (Johnson, *et al*., 2009) [4].

To achieve this effectively, two critical criteria must be satisfied

- Economic development must address the needs of individuals;
- Ecological sustainability must be attained, ensuring that natural resources are preserved for both current and future use without irreversible harm or destruction.

Achieving these goals necessitates action at local, national, and global levels, involving both individuals and collaboration between governmental and nongovernmental organisations. The relationship between health and the environment differs across nations with varying levels of development. For example, child mortality rates are significantly lower in high-income countries such as the UK compared to low-income countries like Tanzania, with road accidents being a significant contributor to these fatalities. Road traffic increases the risk of accidents and contributes to air pollution, representing a significant environmental factor associated with this issue. Pollution may exacerbate asthmatic conditions. The paediatric population in Tanzania experiences numerous health issues, primarily attributable to the nation's challenges in ensuring access to clean water and implementing proper food hygiene practices (D'Souza, 2003) [1].

The prevalence of a relatively affluent lifestyle characterised by excessive food consumption and insufficient physical

activity is primarily responsible for adult mortality in the UK. Limited access to clean water and nutritious food, combined with a high prevalence of HIV and malaria-carrying mosquitoes, adversely affects adult health in Tanzania. Tanzania, akin to the UK, is facing increasing health-related challenges.

Health

The World Health Organisation defines health as a holistic state that includes physical, mental, and social well-being, rather than only the absence of illness or impairment. The WHO defines health criteria as including the availability of resources to satisfy basic human needs and safeguard against environmental hazards, as well as the requirement for a sense of security and well-being. An inappropriate work or living environment may result in physical and psychological issues. Health is increasingly viewed as a collective responsibility that includes not only healthcare professionals but also individuals, families, communities, governments, and international organisations (WHO, 2016) [15].

Environmental Health

The World Health Organisation characterises environmental health as the aspects of human well-being and quality of life that are shaped by various physical, biological, social, and psychological environmental influences. This involves the recognition, mitigation, prevention, and management of environmental challenges that may negatively impact the health of current and future generations (WHO, 2021) [17].

Environmental Threats to Human Health

Numerous environmental risks pose threats to human health. They can be categorised into "traditional risks" associated with underdevelopment and "new hazards" linked to unsustainable development for the purposes of discussion and prioritisation (Patrick, *et al*., 2029) [9]. Risks associated with poverty and insufficient development encompass limited access to clean water, inadequate basic sanitation in residential and communal settings, indoor air pollution from coal or biomass fuel usage for cooking and heating, and improper solid waste disposal.

Contemporary risks are linked to development that does not safeguard human health and the environment, along with the unsustainable exploitation of natural resources. Factors include stratospheric ozone depletion, climate change, water pollution from populated regions, industrial activities, intensive agriculture, urban air pollution from vehicles, coal power plants, and trans- boundary pollution.

Impacts of Pollutant on Human Health

Air pollution refers to the contamination of the atmosphere by hazardous gases, particulate matter, and chemicals. Conditions like asthma and pneumonia result in airway obstruction, leading to difficulties in breathing. The World Health Organisation reports that air pollution accounts for 29% of lung cancer cases. Air pollution has the potential to harm the respiratory system (WHO, 2021) [17].

Water pollution occurs when chemicals or microorganisms contaminate a body of water. Pollution impacts marine life, which is a vital food resource. Water contaminated by chemicals, including heavy metals, lead, pesticides, and hydrocarbons, can lead to hormonal and reproductive issues, as well as damage to the nervous system, liver, and kidneys. Consequently, various diseases such as amoebiasis, typhoid, and hookworm result from water pollution (WHO, 2024) [20].

Land pollution can result in the degradation of ecosystems, the destruction of habitats, and adverse effects on forest resources. Deforestation results in a significantly disrupted rainfall cycle. Toxic chemicals and pesticides contribute to severe illnesses, including skin cancer and respiratory diseases in humans. These chemicals enter the food supply via vegetables cultivated in contaminated soil (WHO, 2022) [18].

Noise pollution effects include hearing loss induced by exposure to excessive noise levels. Health issues can affect individuals across all age groups, resulting in emotional and behavioural stress, as well as damage to the liver, brain, and heart. Noise pollution is associated with an increased incidence of diseases, including headaches, hypertension, and heart failure (WHO, 2018) [14].

Radioactive pollution can cause significant damage to DNA molecules, potentially resulting in life-threatening conditions. This pollution additionally facilitates the proliferation of cancerous cells, such as tumours. Lung cancer, thyroid cancer, bone marrow, intestines, and gonads exhibit heightened sensitivity to radioactive emissions (WHO, 2023) [19].

Sustainable Development

The World Commission on Environment and Development articulates sustainable development as the process of addressing the needs of the current generation, while concurrently ensuring that future generations retain the capacity to meet their own needs. This definition was formulated in 1987. Access to food, employment, shelter, and healthcare is fundamental for all individuals. These needs must be met equitably, while also prioritising environmental protection and resource sustainability.

Historically, humans have engaged with the environment and utilised natural resources. The unregulated use and exploitation of the environment may result in significant long-term consequences. The principles of sustainable development seek to rectify this disparity.

Sustainable development requires the consideration of equality among the current generation. Individuals within society who are particularly susceptible often face heightened risks associated with environmental dangers, such as hazardous working environments and a lack of access to sufficient and safe nourishment and clean water. Poor-quality housing is frequently located in hazardous areas, such as contaminated soil and near industrial facilities and roadways. The Universal Declaration of Human Rights, created by the United Nations, states that "all people have the right to a standard of living adequate for the health and well-being of themselves and their family, including food, clothing, housing, health care, and the necessary social services," highlighting its significance (UN, 1948).

This proclamation has been enacted to protect fundamental rights for current and future generations. International conferences have convened to deliberate on subsequent actions. In 1992, the Earth Summit held in Rio de Janeiro, Brazil, established a set of guidelines aimed at promoting an integrated approach to environmental issues, health, and sustainable development, along with a strategy for future action. The central premise is that human beings are fundamental to the discourse on sustainable development. Individuals have the right to live a healthy and fulfilling life

in accordance with the natural environment (UNCED, 1992). The Earth Summit acknowledged the conflict between human activity and the environment. The summit emphasised that reconciling potential conflicts between health and the environment requires human activities to follow principles that prioritise respect for nature and the prevention of environmental harm. This rule applies solely in cases where it conflicts with the Universal Declaration of Human Rights.

Goals of Sustainable Development

The Sustainable Development Goals serve as a comprehensive framework aimed at fostering a more equitable and enduring future for humanity. They tackle the pressing global issues we encounter, such as climate change, environmental degradation, and the pursuit of peace and justice. The Sustainable Development Goals consist of 17 objectives formulated by the United Nations General Assembly in 2015, designed to steer global initiatives until the year 2030. The Sustainable Development Goal constitutes an integral part of the resolution enacted by the United Nations General Assembly, known as "Transforming Our World: The 2030 Agenda for Sustainable Development," often succinctly referred to as 2030 onwards. The Sustainable Development Goals encompass the environmental challenges and health issues confronting India. These are as belows:

- **Good Health and Well Being for People** - This objective guarantees healthy lives and fosters well-being for everybody, as human health and well-being are closely connected to environmental conditions. High-quality natural surroundings can mitigate disease risk and improve both the quality and duration of life.
- **Clean Water and Sanitation** - The objective of sustainable development aims to guarantee the accessibility and prudent stewardship of water resources and sanitation for everyone. Proper sanitation plays a crucial role in promoting health, elevating environmental standards, and enriching the overall quality of life within communities. Annually, countless individuals succumb to illnesses associated with insufficient access to water, sanitation, and hygiene practices. The availability of clean water and adequate sanitation is crucial for the mitigation of numerous diseases.
- **Sustainable Cities and Communities** - The sustainable development goal also seeks to ensure that cities and human settlements are healthy and safe. It also promotes access to safer and more inclusive green places.
- **Climate Action** - Sustainable development necessitates immediate measures to address climate change and its consequences. This objective aims to enhance resilience and adaptive capacity to climate-related health hazards and natural disasters across all nations.
- **Life on Land** - The sustainable development goals underscore the critical necessity of safeguarding, rehabilitating, and advancing the sustainable utilisation of terrestrial ecosystems, ensuring the sustainable management of forests, reversing the degradation of land, and ceasing the loss of biodiversity.
- **Life Below Water** - The objective of sustainable development is to safeguard and improve the sustainable utilisation of oceanic resources. This encompasses the reduction of marine pollution, the consequences of ocean acidification, and the safeguarding of marine and coastal regions and ecosystems.
- **Partnerships for the Goals** - Sustainable development necessitate a revitalised and enhanced global partnership that unites governments, civil society, and the private sector. Enhanced collaboration among multilateral organisations, donors, and the private sector is essential for improving the efficiency of natural resource utilisation, minimising waste, and addressing climate change.

Conclusion

The principles of sustainable development aim to reconcile the population's right to a healthy environment with the environmental impacts of economic advancement. The increasing visibility of environmental issues, spanning from local to global contexts, underscores the growing importance of addressing these challenges. Historically, civilisations have adopted diverse strategies regarding the relationship between the environment and health. Since the Hippocratic principles of air, water, and location, our understanding of the environmental impact on health has advanced considerably. Current scientific knowledge encompasses ecosystems and the impact of human activities on the environment. The acknowledgement of environmental impact on human health emerged alongside the increasing significance of public health organisations and the expanding environmental movement. Despite some progress in mitigating environmental damage, significant efforts remain necessary, particularly as the concept of global economic development becomes increasingly prominent. The challenge of addressing global climate change and its enduring impacts on the environment and public health presents a significant dilemma for experts, policymakers, communities, and environmentalists. In low and middle-income nations, significant political conflicts and local environmental issues persist and require attention. Sustainable development and collaboration can enhance health and environmental conditions, partially attributable to the Millennium Goals.

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