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Contents

[Introduction 3](#_Toc154923604)

[Body of Assignment 5](#_Toc154923605)

[Summary Describing Course Concept 5](#_Toc154923606)

[My Opinion and Analysis of the Course Concepts 6](#_Toc154923607)

[How to Apply the Knowledge to My Life and Community 11](#_Toc154923608)

[Personal Experience 12](#_Toc154923609)

[Case Examples to Demonstrate the Concepts 16](#_Toc154923610)

[Conclusion 19](#_Toc154923611)

[Bibliography 20](#_Toc154923612)

# Introduction

Public health and the environment are two interconnected topics that play a critical role in shaping the well-being of individuals and communities. As our world becomes more urbanized and industrialized, concerns about the impact on public health and the environment have gained significant attention. This essay aims to explore the relationship between public health and the environment by examining their mutual influence, the importance of sustainable practices, and the role of government policies in promoting a healthier and cleaner living environment.

Public health encompasses the overall well-being of people, including physical, mental, and social aspects. It focuses on preventing diseases, promoting health, and improving the quality of life. At the same time, the environment refers to the surroundings in which we live, including the air we breathe, the water we drink, and the land we inhabit. The connection between public health and the environment lies in the fact that a healthy environment is crucial for maintaining the health and well-being of individuals and communities.

Air pollution, contaminated water sources, and inadequate waste management are some of the pressing environmental issues that directly impact public health. Exposure to pollutants in the air can lead to respiratory problems, cardiovascular diseases, and even cancer. Consuming contaminated water can cause waterborne diseases, while improper waste management can contribute to the spread of infections and vector-borne diseases.

On the other hand, public health measures can have an impact on the environment as well. For instance, healthcare facilities generate vast amounts of medical waste that, if not managed properly, can pose risks to the environment. The excessive use of antibiotics in healthcare can also contribute to the development of antibiotic-resistant bacteria that can eventually find their way into the environment and impact ecosystems.

The concept of sustainable development has gained prominence in recent years, highlighting the need to protect the environment while promoting economic and social progress. Within this framework, sustainable practices in various sectors, such as agriculture, energy, and transportation, are crucial for maintaining public health and safeguarding the environment. For example, adopting renewable energy sources can reduce air pollution and mitigate the effects of climate change, leading to improved public health outcomes.

The role of government policies cannot be understated in addressing public health and environmental challenges. Governments have the power to regulate industries, enforce pollution control measures, and promote sustainable practices through legislation and incentives. Strong government leadership and public-private partnerships are essential in creating a healthier environment and effectively protecting public health.

By addressing the interconnections between public health and the environment, we can achieve not only healthier individuals but also a sustainable future. Efforts to improve sanitation, reduce pollution, and promote sustainable practices will lead to better public health outcomes and a cleaner living environment for generations to come. The essay, will delve deeper into specific public health and environmental challenges and explore potential solutions and strategies that can be implemented to create a healthier future for all. By understanding the importance of the relationship between public health and the environment, we can actively contribute to building a more sustainable and resilient society.

# Body of Assignment

## Summary Describing Course Concept

Public Health and Environment is a multidisciplinary field of study that explores the intricate relationship between human health and the environment in which we live. This course delves into understanding the impact of environmental determinants on public health, as well as the strategies required to address and mitigate environmental health challenges. By examining various environmental factors and their effects on population health, this course equips students with essential knowledge and skills to promote and protect public health.

Public Health and Environment courses play a vital role in creating awareness about the direct and indirect effects of environmental factors on human health. By understanding these relationships, individuals and communities can make informed decisions to safeguard their health and contribute to environmental sustainability.

This course covers a broad range of topics, including environmental risk assessment, environmental epidemiology, environmental health policy, environmental justice, climate change and health, water and sanitation, occupational health, and the impact of pollution on health outcomes.

Public Health and Environment courses are aligned closely with the United Nations Sustainable Development Goals, particularly Goal 3 (Good Health and Well-being), Goal 6 (Clean Water and Sanitation), Goal 11 (Sustainable Cities and Communities), Goal 13 (Climate Action), and Goal 15 (Life on Land). The study of the relationship between public health and the environment has significant global health implications. From mitigating the health impacts of climate change to addressing the consequences of pollution in low-income communities, this course equips people with the knowledge required to improve health outcomes on a global scale.

Public Health and Environment courses provide students with a solid understanding of policy development and advocacy strategies to address environmental health challenges. By promoting evidence-based policies and engaging in community-centered approaches, students can be transformative agents for change.

Public Health and Environment courses encourage collaboration among various disciplines to promote holistic environmental health solutions. By fostering partnerships between public health professionals, scientists, policymakers, engineers, and community advocates, the course promotes interdisciplinary approaches to address complex public health challenges effectively.

Graduates of Public Health and Environment courses are equipped with a diverse set of skills that open doors to a wide range of career opportunities. Some potential career paths include environmental health specialist, public health officer, epidemiologist, policy analyst, public health consultant, and sustainability manager.

## My Opinion and Analysis of the Course Concepts

The relationship between public health and the environment cannot be overstated, as they are deeply intertwined and constantly influencing each other at the global level. This analysis aims to explore the key aspects of this dynamic interaction, including the outcome on human well-being, the challenges faced, and potential strategies for improvement. Through an examination of research and studies, the significance of this issue becomes apparent, highlighting the need for comprehensive solutions and greater international cooperation.

Numerous studies have established the clear link between environmental factors and public health. Air pollution, for instance, poses a significant risk to respiratory diseases, while water contamination affects the prevalence of waterborne illnesses. Direct exposure to hazardous chemicals and contaminants also contributes to chronic diseases, cancer, and developmental disorders.

The changing climate patterns are amplifying the risks posed by infectious diseases on a global scale. The spread of vector-borne diseases, such as malaria and dengue fever, is expanding due to rising temperatures and changing rainfall patterns that favor disease-carrying vectors. Additionally, the impacts of extreme weather events, resulting from climate change, exacerbate the risks of infectious disease outbreaks.

The rapid urbanization of many countries has led to increased environmental health challenges. Overcrowding, inadequate sanitation systems, and limited green spaces contribute to the spread of communicable diseases, mental health issues, and physical inactivity. Addressing these challenges requires investment in urban planning, infrastructure, and sustainable public health measures. The loss of biodiversity worldwide poses a significant threat to public health. As humans encroach upon natural habitats, the likelihood of zoonotic disease transmission increases. From HIV/AIDS to Ebola, the majority of emerging infectious diseases are of zoonotic origin. Preserving biodiversity becomes crucial in preventing future pandemics and protecting global public health.

The burden of environmental health hazards disproportionately affects marginalized communities and developing countries. Unequal access to clean air, safe drinking water, and green spaces has adverse effects on health outcomes, perpetuating health inequities globally. Addressing environmental justice is imperative to ensure everyone has an equal right to a healthy environment.

Africa, with its rich biodiversity and diverse ecosystems, faces significant challenges in the realm of public health and the environment. This analysis explores key issues and provides an overview of the current state of public health and environmental concerns in Africa. Drawing on various references, we delve into the major factors affecting this region and highlight potential strategies for improvement. The continent battles a high prevalence of infectious diseases like malaria, HIV/AIDS, tuberculosis, and neglected tropical diseases. These diseases pose a significant burden on public health systems and impede socio-economic progress (World Health Organization, 2019).

Many countries in Africa struggle with inadequate healthcare infrastructure, including a shortage of healthcare professionals, limited healthcare facilities, and a lack of access to essential medicines (Mahtani et al., 2020). It has some of the highest rates of maternal and child mortality globally. Addressing this issue requires improving access to reproductive healthcare services, antenatal care, skilled birth attendants, and nutrition programs (United Nations, 2019).

Rapid urbanization, agriculture expansion, and illegal logging contribute to significant forest loss in Africa. Deforestation leads to soil erosion, loss of biodiversity, and contributes to climate change (Food and Agriculture Organization, 2021). Many regions in Africa face severe water scarcity, exacerbated by population growth, environmental degradation, and climate change. This scarcity impacts sanitation, hygiene, and agricultural practices (United Nations Environment Programme, 2021). In the same vein, Rapid industrialization, urbanization, and the extensive use of traditional fuels contribute to high levels of air pollution in African cities, leading to adverse respiratory and cardiovascular health effects (Pope et al., 2019).

In the context of The Gambia, public health and environment faces numerous challenges that require immediate attention. Access to healthcare in The Gambia is a major concern, with limited availability of essential services. According to the WHO, the doctor-patient ratio stands at 1:12,919, well below the recommended ratio of 1:1,000. This scarcity of healthcare professionals, particularly in rural areas, restricts individuals' access to quality medical care, leading to higher mortality rates and hindered public health outcomes.

The lack of proper sanitation facilities, particularly in rural communities, poses significant challenges to public health. According to the UNDP, only 32% of the rural population in The Gambia has access to improved sanitation facilities. Inadequate access to clean water and sanitation contributes to the spread of waterborne diseases such as diarrhea, and cholera, leading to increased morbidity and mortality rates.

The Gambia is highly vulnerable to the impacts of climate change, which exacerbates existing public health challenges. Rising temperatures, changing rainfall patterns, and more frequent extreme weather events contribute to the spread of vector-borne diseases, including malaria. Moreover, climate change affects agriculture, resulting in food insecurity and malnutrition, particularly among vulnerable populations such as children and pregnant women.

Immunization coverage in The Gambia remains relatively low, posing a significant threat to public health. According to the WHO, vaccine coverage for essential childhood immunizations such as measles, polio, and diphtheria-tetanus-pertussis (DTP) is below the target of 90%. This highlights the need for improved vaccination programs to prevent the outbreak and spread of vaccine-preventable diseases.

The Gambia faces challenges in terms of healthcare infrastructure. Many health facilities lack essential equipment and resources, hindering the provision of adequate healthcare services. The government needs to prioritize investment in healthcare infrastructure to improve access to quality care and enhance public health outcomes.

Air pollution, particularly from indoor cooking and fossil fuel usage, poses a significant threat to public health in The Gambia. According to National Nutrition Agency (NaNA), indoor air pollution accounts for a considerable proportion of respiratory diseases, especially among women and children. Mitigation strategies such as promoting clean cooking technologies and reducing reliance on fossil fuels can lead to improved public health outcomes. Unsafe water sources and inadequate water treatment facilities contribute to a high burden of waterborne diseases in The Gambia. The prevalence of diseases such as diarrhea, which is often linked to poor water quality, poses a significant public health concern. Strengthening water treatment systems and promoting safe sanitation practices are essential to reducing waterborne diseases.

Deforestation in The Gambia has detrimental effects on both the environment and public health. Forest loss disrupts ecosystems, leading to the extinction of plant and animal species, reducing biodiversity. This loss, coupled with the release of carbon dioxide, contributes to climate change and its associated health risks. Implementing sustainable forest management practices can help mitigate these impacts. Education and awareness play a crucial role in addressing public health and environmental challenges. Raising awareness about proper hygiene practices, the importance of immunization, and the need for environmental conservation can empower individuals to take proactive steps toward improving their health and preserving the environment.

## How to Apply the Knowledge to My Life and Community

As the national coordinator for water sanitation and hygiene in The Gambia, applying new knowledge in public health and environment to my work and community can significantly enhance my effectiveness and impact. Here are some ways in which i can do so:

I will use my knowledge to trive policy reforms: Advocate for policy reforms that promote water sanitation and hygiene, based on evidence-based research and best practices. Share my new knowledge with government officials, NGOs, and other stakeholders to influence decision-making processes. Also utilize my understanding of public health to educate and raise awareness among community members about the importance of safe sanitation practices, proper hygiene, and the health impacts of contaminated water.

Use my new knowledge to assess the specific needs of different communities in terms of water, sanitation, and hygiene. Identify gaps and develop strategies to address them effectively. Encourage active participation from the community by involving them in the planning, implementation, and evaluation of water sanitation and hygiene projects. Ensure that my interventions are culturally appropriate and address the specific needs of different groups.

Build partnerships with local organizations, schools, community leaders, and other relevant stakeholders to jointly address water sanitation and hygiene challenges. Share my new knowledge with them and find innovative ways to work together. Apply my knowledge of environmental sustainability to design and implement long-term solutions for water sanitation and hygiene, considering factors like water scarcity, climate change, and waste management.

Stay updated: Continuously seek out new research, policies, and technologies in the field of public health and environment. Subscribe to relevant journals, attend conferences, and engage in professional development programs.

Share my new knowledge with my team and colleagues, providing training and mentorship to build their capacity in public health and environmental practices. Developing a knowledgeable and skilled workforce will multiply the impact of my efforts. I will uutilize my position as a national coordinator to raise national awareness about the importance of water sanitation and hygiene. Engage in public speaking, media campaigns, and workshops to advocate for improved practices and policies in The Gambia. Develop robust monitoring and evaluation systems to track the progress of my initiatives. Use my new knowledge to collect and analyse data, measure impact, and make evidence-based adjustments to my programs.

By actively applying new knowledge in public health and environment to my work and community, i will be able to make a significant difference in improving water sanitation and hygiene practices in The Gambia. my efforts will contribute to healthier communities, reduced water-borne diseases, and a more sustainable environment.

## Personal Experience

From 2009 to date my fundamental role in the health sector is how to improve environmental and social determinants of health in the country. One of the worst environmental determinants of health that the country is battling with sanitation which has direct and indirect influence on the prevalence and burden of diseases in the Gambia particularly. The country has registered significant progress on attaining open defecation free in the rural areas. However, many households are still using rudimentary sanitation facilities thus a challenge in attaining safely managed sanitation.

An assessment which I led as the national coordinator for sanitation in the Gambia in 2019, to guide Water and sanitation Unit of the ministry of health in the implementation of the urban sanitation strategy. The report shows that urban settlements such as Tallinding Farokono, Ebow town, Faji kunda Faro kono, Bundung Farokono, Manjai Kunda and Kotu Farokono are still practicing open defecation. In addition to that all these areas are low land areas and are highly prone to flood. Waste management both solid and liquid waste has been proven to be very poor in these settlements. This has prompted the WASH program to marked these areas as hot spots for poor sanitation.

Most of people in these areas did not adhere to dumping of their waste in a designated dump site. Instead, there are a lot of illegal dump site which exacerbated poor sanitation of these areas. The poor solid waste management also created blockages in the storm drainages, this hinders the runoff water to go to the river and that also contribute to frequent flooding of these settlements.

Most of these urban settlements encroached in to swampy areas to construct their compounds. The areas have high water table and this make it very difficult to construct a latrine or a good soakaway for proper liquid waste management. In the raining season when the water table increase, the dwellers in these areas find it very difficult to maintain good sanitation practices. Soakaways frequently filled up and the frequency of dislodging them became high and it create and economic burden on the households. More often than not, the waste from soakaways mixed with the runoff water which also contribute to high incidence of enteric diseases in these settlements.

In 2022 the country experienced heavy down pour of rain. This has seriously affected most of these settlements. Compounds were flooded and people lost their properties. Water sources in the these areas were contaminated. Ministry of health in collaboration with stakeholders and partners in which I coordinated the WASH component while national disaster management Agency coordinated the overall response program. We embarked on sensitization of the community members on how to prevent them self from contracting diseases in those difficult times and also provided Aqua Tab for household water treatment to the people. The response program also supplied dignity kits with the support from UNICEF and other partners.

access to clean drinking water and sanitation facilities is a critical aspect of public health in The Gambia. Many communities lack access to safe water sources and proper sanitation systems. This leads to the spread of waterborne diseases such as diarrhea and cholera. Efforts to improve water and sanitation infrastructure are crucial for ensuring good public health.

The government and stakeholders in the sanitation sector tent to concentrate more in the rural areas in terms of interventions in sanitation. Most of the development partners have the belief that sanitation problem are more profound in the rural areas this has few or no intervention in urban areas. The reality in the Gambia is, there are a lot of urban poor that fine it very difficult to even take care of their daily meals not to talk of other basic needs of life such as sanitation and portable water. Those determinants have made such population living in the urban areas to be highly vulnerable due to their economic status and also the areas in which they are dwelling exposed them to the impacts of environmental determinants to health.

The Gambia has made progress in recent years in addressing public health challenges. The government has implemented various health programs, such as the National Malaria Control Program and the Expanded Program on Immunization, to combat infectious diseases and improve immunization coverage. As country consultant for GHFD initiative in the Gambia, I facilitated a meeting for the EPI and Malaria Control programs to make a joint proposal for the roll out of malaria vaccine to contribute to other interventions in this areas in a bid to elimination malaria in the country. The two programs are currently working together to push this agenda.

Collaborations with international organizations such as WHO, UNICEF UNFPA and NGOs have also played a significant role in improving public health in The Gambia. These partnerships have helped in providing financial support, technical expertise, and resources to strengthen the healthcare system and address environmental issues. This has been manifested in the country’s public health response to the COVID-19 pandemic which was commendable. The government implemented strict measures such as border closures, mandatory mask-wearing, and public health campaigns to raise awareness about the virus. In addition, the country conducted vaccination campaigns to mitigate the spread of the virus.

Despite progress made, challenges remain in achieving optimal public health outcomes in The Gambia. There is a need for continued investment in healthcare infrastructure, strengthening disease surveillance and response systems, and improving the overall quality of healthcare services. Moving forward, a comprehensive and multisectoral approach is necessary to improve public health and the environment in The Gambia. This includes strengthening healthcare systems, increasing access to clean water and sanitation, promoting sustainable land management practices, and addressing social determinants of health to ensure health equity for all Gambians.

## Case Examples to Demonstrate the Concepts

In The Gambia, a West African nation known for its diverse ecosystems and natural beauty, the intersection between public health and the environment plays a vital role in ensuring the well-being of its population. The government, in collaboration with international organizations, has been actively working to address various public health challenges while promoting sustainable environmental practices

One such challenge is the prevalence of malaria, which is endemic in The Gambia. As an environmentally linked disease, efforts to control malaria involve targeting the breeding grounds of mosquitoes, such as stagnant water bodies and improper waste management sites. Public health campaigns, supported by the Ministry of Health and Environment, have educated communities on the importance of keeping their surroundings clean to reduce the mosquito population and thus minimize malaria transmission.

Another public health concern in The Gambia is the lack of access to safe drinking water and sanitation. The government has implemented initiatives to promote the construction of wells and the improvement of water supply infrastructure. These efforts aim to reduce waterborne diseases by providing clean water to communities and also working with stakeholders to ensure that sanitation become a demand driven commodity in the country, thereby improving public health outcomes.

Promoting sustainable agricultural practices is another crucial aspect of public health and the environment in The Gambia. Unsustainable farming practices can lead to soil degradation, deforestation, and an increase in the use of harmful pesticides, negatively impacting both human health and the ecosystem. The government has implemented programs that educate farmers on sustainable practices, such as crop rotation, organic farming, and agroforestry, resulting in improved food production and decreased environmental damage.

Air pollution, primarily from indoor cooking using traditional stoves, is a significant public health concern in The Gambia. The government, in collaboration with international partners, has launched initiatives to provide cleaner cooking technologies to rural communities. By promoting the use of improved cookstoves and alternative energy sources, such as solar-powered cookers, the aim is to reduce respiratory illnesses and air pollution, benefiting both public health and the environment.

The Gambia's coastal communities are particularly vulnerable to the impacts of climate change, including rising sea levels and coastal erosion. Recognizing the link between environmental degradation and public health, the government, with the support of international funding, has undertaken projects to reinforce coastal defences and protect communities from these climatic changes. Such efforts ensure the safety and well-being of coastal inhabitants and promote their resilience to future environmental challenges.

With wildlife poaching and illegal wildlife trade threatening The Gambia's biodiversity and contributing to public health risks, the government has established national parks and protected areas to safeguard wildlife populations. The conservation efforts not only preserve the country's rich natural heritage but also protect against zoonotic diseases, which can transmit between animals and humans.

To address waste management challenges, especially in urban areas, The Gambia has embraced strategies aimed at reducing, reusing, and recycling waste. The promotion of waste separation, effective waste collection systems, and public awareness campaigns has resulted in cleaner urban environments, reduced pollution, and improved public health outcomes by minimizing the spread of diseases associated with improper waste disposal.

Access to healthcare services, particularly in rural areas, is a critical public health issue in The Gambia. Recognizing that environmental factors can affect health outcomes, the government has developed strategies to improve accessibility by providing mobile healthcare units. Equipped with basic medical facilities, these units are able to reach remote communities, ensuring timely healthcare services and reducing health disparities between urban and rural populations.

In summary, The Gambia's approach to public health and the environment is comprehensive and interconnected. By addressing challenges like malaria, access to safe water and sanitation, sustainable agriculture, air pollution, climate change, wildlife conservation, waste management, and healthcare accessibility, the government aims to protect both the well-being of its people and the natural ecosystems that sustain them. Through collaboration with international partners, these efforts continue to contribute to the overall improvement of public health and environmental sustainability in The Gambia.

# Conclusion

The interconnectedness of public health and the environment demands collective action at a global level. By acknowledging the impacts of air pollution, climate change, urbanization, biodiversity loss, and environmental justice, policymakers, researchers, and communities can work towards comprehensive strategies that promote sustainable development, protect public health, and ensure a healthier future for all. The Gambia faces significant public health and environmental challenges, including inadequate access to healthcare services, insufficient sanitation facilities, and the impacts of climate change. Addressing these issues requires a multi-sectoral approach, involving collaboration between the government, international organizations, and local communities. By implementing targeted interventions, improving healthcare infrastructure, and raising awareness, The Gambia can make significant progress towards a healthier population and a more sustainable environment.

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