

EMERGING ENVIRONMENTAL CHALLENGES: THE ROLE OF BEHAVIOURAL CHANGE IN SUSTAINABLE HEALTH OUTCOMES

RADHIKA MALVIYA

Research scholar
Department of Political Science and Public Administration, Dr. Harisingh Gour
Vishwavidyalaya Sagar (M.P.)

ABSTRACT

In recent times, environmental degradation has increasingly been evident through environment-related diseases, creating significant challenges for public health and sustainable development. There are several factors like air and water pollution, inadequate sanitation, climate changes, exposure to chemicals, and unsustainable consumption have led to an increase in respiratory conditions, water-borne diseases, vector-borne diseases, heat waves, and mental health disorders. Although technological advancements and policy measures are crucial but evidence indicates that human behaviour is a key factor in both the rise and prevention of health risks associated with the environment.

This paper examines at recent environmental diseases and related issues, how changes in behaviour at the individual, community, and institutional levels can help address these problems. The study uses a qualitative and analytical approach, drawing on secondary data, example the world and India, and public health reports. It examines how behaviours like waste disposal, energy use, water use, hygiene, and travel habits affect environmental health risks. The paper also discusses strategies for changing behaviour, such as awareness campaigns, social norms, community involvement, and policy nudges, to improve both environmental and health outcomes.

The study finds that many environment-related diseases are preventable through sustained behavioural change along with effective governance, education, and community engagement. However, behaviour change initiatives often face challenges related to socio-cultural norms, economic constraints, and uneven access to resources. The paper concludes that integrating behavioural science into environmental and public health policies is crucial for addressing contemporary environmental health challenges and achieving long-term sustainability.

Keywords: Environment-Related Diseases, sustainable development, behavioural change, public health.

INTRODUCTION

21st century is the evident of rapid Industrialisation rapid Privatisation and urbanisation which lead to fastest growth and development in every sphere- social, political, economic, technological etc. As said by **Paullina Simons** in *The Summer Garden* (2002):

"Everything comes at a price. Everything in your life. The question you have to ask yourself is, what price are you willing to pay?"

Same happened with Living Being that we see transition from Bullock cart to Trains, from Train to Planes, from Swords to Missiles and Fighter Jets, from Mud Roads to concrete Bridges etc. But these all came with huge cost— cost in terms of disturbing nature, huge loss of biodiversity, deteriorating environmental health. As **IUCN Red List** shows that about **48,646 species worldwide are threatened with extinction**, comprising about **28% of**

assessed species, driven by habitat loss, climate change, overexploitation, and other human pressures (IUCN, 2025). Same World Health Organization (2022) said that environmental factors are responsible for about 24% of all global diseases, affecting 1.7 billion people every year worldwide. This growing crisis shows that we need to look closely at human behaviour, which acts as both the cause of the problem and the key to the solution. Indeed, new technologies and environment- related legislations are need of the hour but few studies suggest that best and effective way to improve environment health and prevent diseases through behavioural changes at the individual, community, and government levels. By focusing on how we can change our daily habits and actions, we can reduce health risks while also protecting the planet for the long term.

This Research Paper uses a mixed-methods approach combining qualitative and quantitative analytical techniques to provide comprehensive understanding of behavioural change in environmental health contexts.

CONCEPTUAL AND THEORETICAL FRAMEWORK

The wide purpose of this research paper is to examine how environmental conditions and human behaviour are interrelated and together influences the physical and mental well-being of Living-being. This is evident that a large number of diseases arises from preventable environmental factors-- polluted air, unsafe water, poor sanitation, and unmanaged waste. These factors are not only technical or infrastructural problems but are strongly shaped by human behaviour at individual, household, and community levels (Mohapatra, 2019).

For justifying behavioural dynamics there are some key behavioural theories-

First, **Health Belief Model (HBM)** given by **Irwin M. Rosenstock, Godfrey M. Hochbaum, S. Stephen Kegels, and Howard Leventhal** explain that why individuals adopt or resist environmentally healthy behaviours. As per this theory when people see risk or threat which are serious and personally vulnerable so they change their behaviour in our case they move towards safe water use, waste segregation, afforestation for clean air or reducing impact of heat waves etc to protect from environmental negative impacts. As Mohapatra (2019) highlights that sanitation programmes succeed only when people clearly understand the health risks of unsafe practices.

Second, **Theory of Planned Behaviour (TPB)** given by **Icek Ajzen** explains how attitudes, social norms, and perceived control shape behaviour. As per this theory human behaviour is not driven by intentions, which are shaped by three core factors: attitudes toward the behaviour, subjective norms (perceived social pressure), and perceived behavioural control. For example, even when sanitation facilities exist, unsafe practices may continue due to social norms or lack of community pressure. Studies of Swachh Bharat Mission show that community norms and peer influence play a decisive role in sustaining behaviour change (Mohapatra, 2019).

Overall, above mentioned theories clearly highlight that alone governmental intervention or technological development cannot solve the environmental problems until changes in human behaviour do not occur. By integrating behavioural theories with environmental health perspectives, this study provides a holistic approach to understanding disease prevention and sustainable health promotion.

ENVIRONMENTAL HEALTH CHALLENGES: CONTEMPORARY EVIDENCE

- **Air Quality and Respiratory Health**— Deteriorating Air Quality is one of the serious environmental problems in the today context. As per World Air Quality Report

2023, of the 100 most polluted cities in the world, 83 are in India (Wikipedia). Air quality has become a serious health issue because the pollutants enter deep inside the lungs and the lungs capacity to purify bloods gets reduced which affects the person's growth, mental ability and the working capacity especially for children, pregnant women and elderly people (for instance Delhi Air Pollution in October- November).

As per **Global Burden of Disease study 2023** shows that air pollution leads to millions of premature deaths, mainly from lung and heart diseases. Young children are particularly at risk because their lungs are still developing, making polluted air especially dangerous for their growth and long-term health.

- **Water Contamination and Waterborne Diseases**—Deteriorating Water Quality and even depleting ground water basically due to climate change and inadequate behavioural practices at individual, community, and institutional levels (for instance Jackson, Mississippi water crisis from 2022 to 2023 and The Yamuna River in Delhi contains faecal coliform levels 10,000 times above safe limits). The United Nations Water Development Report 2023 identified that 3.6 billion people face water scarcity for at least one month annually, with quality degradation affecting an additional 2 billion people who have limited access to clean water for drinking and sanitation purposes. This crisis threatens fundamental health outcomes and contributes to the spread of waterborne diseases— cholera, typhoid, and hepatitis A, that disproportionately affect vulnerable populations in developing countries.
- **Climate Change and Vector-Borne Diseases**—Climate Change has changed whole disease vector distribution pattern creating, new public health emergencies that extend beyond traditional geographical boundaries. The World Health Organization's 2023 Climate Change and Health Report documented expanding dengue fever transmission zones, with cases increasing 1,200% since 1990 as warming temperatures create suitable environments for mosquito breeding, same with Malaria transmission zones. Behavioural Factors are responsible for such diseases like Water storage practices create mosquito breeding sites when residents store water in open containers for daily use, providing ideal conditions for dengue and malaria mosquito reproduction.
- **Chemical Exposure and Endocrine Disruption**—Industrial Chemicals exposure increasing health risk of now only human being but also animals and plants by contemplating Air, Water, Land, even our Food Chain also. The 2023 European Environment Agency report identified 14,000 registered chemicals in consumer products, with fewer than 30% adequately tested for long-term health impacts. This testing gap creates risks for endocrine disruption and other chronic health effects that may not become apparent for decades after chemical exposure begins. This increases now our day to day-to-day behaviour—daily choices about product purchases and usage patterns, Cosmetic and personal care product, household cleaning product etc.

BEHAVIOURAL DETERMINANTS OF ENVIRONMENTAL HEALTH

- **Individual-Level Behaviours**-- Individual behaviours are the foundation of environmental health outcomes through daily choices and practices, because it is natural tendency in living being if someone follows one good practice it will be adopted by another and it is continuing like a chain, and in era of social media it spreads like fire in the forest. So, directly or indirectly individual behaviour create substantial environmental impacts. Recent researches consistently shows that personal behaviours account for 60 to 70% of environmental health risk factors in developed

economies, suggesting that individual action is important for environmental health improvement (International Energy Agency, 2023). Same mentioned in Global Waste Monitor 2023 that households practicing proper waste segregation reduce community pollution levels by 45% compared to households that mix waste together without separation. Carbon Emission is the huge problem of 21st century but as identified by Carbon Trust's 2023 analysis demonstrated that changes in consumer behaviour could reduce global carbon emissions by 25% through food choice modifications (reduced meat consumption), transportation behaviour changes (adoption of active transport), and energy consumption adjustments through use of efficient appliances (Carbon Trust, 2023). Same with waterborne diseases as mentioned in Global Water Report 2023 published by UNICEF that communities who frequently wash their hand have fewer diarrheal diseases compared to communities which generally not follow (UNICEF, 2023).

- **Community-Level Behaviours**-- Community behaviours emerge through social interactions and collective decision-making processes that determine environmental health outcomes for entire populations. Community-level behaviours often prove more influential than individual choices alone because they establish social norms that guide individual behaviour and create collective commitment to environmental health improvements. The Swachh Bharat Mission in India shows that how community mobilization behaviours affect sanitation outcomes in India. Villages achieving 100% toilet construction through community coordination reduced open defecation-related diseases by 67% compared to villages without community mobilization, showing that collective action produces superior health outcomes (Ministry of Drinking Water and Sanitation, 2023). The success resulted not only from individual toilet construction but from community agreement that open defecation was unacceptable behaviour, creating powerful social enforcement of sanitation practices.
- **Institutional Behavioural Patterns**—Institutions including Governmental agencies, Corporations, Non-Profit organisations, international organisations etc shapes the Behaviour of general people through using their power of decision-making through implementation of policies and resource allocation decisions.

BEHAVIOURAL CHANGE STRATEGIES AND INTERVENTIONS

- **Awareness and Education Campaigns**—Education is the backbone of every society and it is the first and foremost approach to change behaviour of people. As seen in Singapore, Singapore's Every Drop Counts campaign achieved 15% reduction in household water consumption through an emotional appeal to people to change their day-to-day doings for saving water. Same seen in India's Har Ghar Jal Mission, education-focused behavioural intervention targeting water quality behaviours (Jal Jeevan Mission Report, 2023).
- **Social Norm Interventions**—Social norm interventions create peer influence and community expectations to promote environmental health behaviours by changing what behaviours are considered normal and acceptable within specific communities. Bangladesh's Community-Led Total Sanitation approach achieved 100% sanitation coverage in 60,000 villages through social norm manipulation that triggered shame and pride mechanisms related to open defecation practices (UNICEF Bangladesh, 2023). The intervention succeeded by working with existing social hierarchies and cultural values rather than imposing external standards.

- **Community Engagement and Participation**— Participatory approaches engage communities as active agents in environmental health improvement, creating ownership and sustainability that external interventions often lack. Ethiopia's Health Extension Program trained 38,000 women as community health workers focused on environmental health behaviours in rural villages where access to formal health services is limited. The program achieved 40% reduction in childhood diarrheal diseases and 52% improvement in household sanitation practices by working through existing women's networks and providing ongoing support for behaviour change (World Health Organization Ethiopia, 2023).
- **Policy Nudges and Incentive Systems**— British Columbia's carbon tax implementation demonstrated behavioural responsiveness to economic incentives designed to reduce carbon emissions through price signals. Household energy consumption decreased 7% annually following tax implementation, with low-income households showing greater behavioural adaptation with 23% reduction due to higher price sensitivity to energy costs (Canadian Public Policy, 2023).

CASE STUDIES: SUCCESSFUL BEHAVIOURAL INTERVENTIONS

Tokyo's Heat Island Mitigation Program—In Tokyo, there were problem of Urban heat island effects which increases the temperature (record-breaking summer temperatures) resulted into thousands of heat-related hospitalizations. Then, Tokyo implemented a well-planned and structured behaviour intervention program targeting individual, community, and institutional behaviours simultaneously through coordinated interventions designed to reduce urban temperatures and protect public health. At Individual Level- green curtain cultivation campaigns that encouraged residents to grow climbing plants on building walls and balconies to provide natural cooling and reduce energy consumption for air conditioning. At Community level- focused on neighbourhood cooling centre establishment through community cooperation where residents collaborated to create shared cooling spaces in community centres and schools. At Institutional level- included corporate rooftop greening requirements with compliance incentives that encouraged businesses to install gardens and green spaces on building rooftops. The program achieved remarkable results within three years including urban temperatures reduced by 2.3 degrees Celsius in participating districts, heat-related hospital admissions decreased by 41%, community participation rates reached 73%, and corporate compliance achieved 89% (Tokyo Metropolitan Government, 2023).

POLICY RECOMMENDATIONS AND IMPLEMENTATION STRATEGIES

- **Multi-Level Intervention Framework**—Multi-Level coordination is the need of the hour, effective interventions at Individual, community and Institutional level. At Individual level- should focus on education, skill building, and motivation enhancement that encourage people to adopt environmental health behaviours in day-to-day life. At Community level- should strengthen social norms, leadership capacity, and collective efficacy that support individual behaviour change and create sustainable social pressure for continued practice. At Institutional level- should modify policy environments, resource allocation, and organizational practices that determine the feasibility and attractiveness of environmental health behaviours. Resource and Time coordination at different level reduces conflict, prevents duplication of efforts, effective utilization of resources etc.

- **Technology Integration and Digital Solutions**—In the era of Digitalisation, adopting best practices is becoming very easy through real-time feedback, social connection, and reduced barriers to behaviour adoption. But technology integration must address digital divide issues that may exclude populations with limited technology access from intervention benefits and must ensure that technology solutions complement rather than replace human relationships and community connections that support long-term behaviour change.
- **Financing and Incentive Mechanisms**-- Sustainable environmental health behaviour change requires financing mechanisms that address economic barriers and create positive incentives for behaviour adoption and maintenance such as Microfinance programs, Carbon credit, Subsidies and tax incentives, Insurance and risk-sharing mechanisms etc.
- **Monitoring and Evaluation Systems**-- Behaviour monitoring should track both adoption of new practices and maintenance of behaviour change over time, recognizing that initial adoption and long-term maintenance require different types of support and face different barriers.

CONCLUSION

This comprehensive analysis demonstrates that environmental health challenges represent complex problems requiring sophisticated behavioural interventions that operate across multiple levels of social organization. The evidence clearly shows that environmental degradation creates substantial health risks through air pollution, water contamination, climate change impacts, and chemical exposure that affect billions of people worldwide. Individual behaviours significantly influence these environmental health outcomes through daily choices about consumption, waste disposal, transportation, and energy use that collectively determine environmental impact and disease risk.

The research reveals that successful environmental health behaviour change requires understanding and addressing multiple barriers including socio-cultural norms, economic constraints, infrastructure limitations, and institutional failures that prevent adoption of healthier environmental practices. Effective interventions combine education and awareness building with social norm change, community engagement, and policy support that creates enabling environments for behaviour change rather than relying solely on individual motivation and knowledge.

Environmental health behaviour change represents both an urgent necessity and a promising opportunity for addressing some of the most pressing health challenges of our time. The continued growth of environmental health risks demands immediate action to promote behaviours that protect both individual and population health while preserving environmental resources for future generations. The success stories documented in this research provide clear evidence that comprehensive behavioural interventions can achieve substantial environmental health improvements when implemented with adequate resources, political support, and community engagement that recognizes the complexity of human behaviour and the multiple factors that influence environmental health outcomes.

REFERENCES

1. Carbon Trust. (2023). Global carbon reduction potential through consumer behavior change. Carbon Trust Annual Report, 45-67.
2. International Energy Agency. (2023). Global energy transitions and behavioural change potential. IEA World Energy Outlook, 178-195.

3. International Union for Conservation of Nature. (2025). IUCN Red List of Threatened Species: 48,646 species now at risk of extinction [Data update]. <https://nrl.iucnredlist.org/>
4. Jal Jeevan Mission Report. (2023). Community water testing adoption in rural India. Ministry of Jal Shakti, Government of India.
5. Kerala Government. (2023). Zero waste communities: Kerala's waste management transformation. Department of Local Self Government, Kerala State.
6. Ministry of Drinking Water and Sanitation. (2023). Swachh Bharat Mission: Rural sanitation behavioural impact study. Government of India Annual Report, 234-267.
7. Mohapatra, B. (2019). Projected behavioural change in Swachh Bharat Mission: A public policy perspective. **Journal of Public Affairs**, 19(4), e1966. <https://doi.org/10.1002/pa.1966>
8. Tokyo Metropolitan Government. (2023). Urban heat island mitigation through community behavioural change. Environmental Policy Bureau Report, Tokyo.
9. UNICEF. (2023). Global water, sanitation and hygiene: Annual report on behavioural determinants. UNICEF Water Division, New York.
10. United Nations Water. (2023). World water development report: Water scarcity and quality challenges. UN Water Annual Assessment, Geneva.
11. World Economic Forum. (2023). Global waste monitor: Consumer behaviour and environmental impact. WEF Sustainability Report, Geneva.
12. World Health Organization. (2022). Environmental health risks and disease burden: Global assessment. WHO Technical Report Series, No. 989.