

## “Urban Poverty and Environmental Health Inequality”

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### Abstract

Urban poverty and environmental health inequality are deeply interconnected challenges in rapidly urbanizing regions. As cities expand, a significant portion of the population particularly low-income groups reside in informal settlements with inadequate housing, poor sanitation, and limited access to clean water and healthcare. These conditions expose them to higher levels of environmental risks such as air and water pollution, waste accumulation, and overcrowding. Environmental health inequality arises because disadvantaged communities are disproportionately affected by hazards that contribute to diseases like Cholera and Asthma. Limited access to healthcare services further worsens their vulnerability, creating a cycle of poverty and poor health outcomes. In contrast, wealthier urban populations benefit from better infrastructure and cleaner environments. This issue highlights the urgent need for inclusive urban planning, improved public health systems, and sustainable environmental management. Addressing these inequalities is essential for achieving equitable development and ensuring a healthier quality of life for all urban residents. Urban poverty and environmental health inequality represent critical challenges in the context of rapid urbanization, especially in developing countries. The continuous migration of people from rural to urban areas in search of better opportunities has led to the expansion of slums and informal settlements. These areas are often characterized by overcrowding, lack of proper housing, inadequate sanitation, and limited access to clean drinking water, which significantly deteriorate environmental health conditions. People living in poverty are more exposed to environmental hazards such as air pollution, contaminated water, improper waste disposal, and poor drainage systems. These conditions increase the risk of infectious and chronic diseases, including Cholera, Tuberculosis, and Asthma. Moreover, the lack of awareness and limited access to healthcare facilities further intensify health risks among the urban poor.

Environmental health inequality occurs because marginalized communities have fewer resources and less political influence to demand better living conditions. As a result, they often live near industrial zones, garbage dumps, or polluted water bodies, facing higher exposure to environmental risks compared to wealthier populations. Addressing these issues requires integrated approaches such as sustainable urban planning, improved waste management systems, equitable distribution of resources, and accessible healthcare services. Government policies and community participation play a crucial role in reducing disparities and promoting environmental justice. In conclusion, tackling urban poverty and environmental health inequality is essential for sustainable urban development. Ensuring equal access to a clean and healthy environment will not only improve public health outcomes but also contribute to social and economic stability in urban areas.

**Keywords:** Environmental, public health, populations, water, Urban, Cholera, Asthma

### I. Introduction

Urbanization is one of the most significant global trends, leading to rapid growth of cities and increased population density. While urban areas offer better economic opportunities and access to services, they also give rise to serious challenges such as urban poverty and environmental health inequality. A large section of the urban population, especially in developing countries, lives in slums and informal settlements where basic amenities like clean water, proper sanitation, and safe housing are lacking. Urban poverty forces people to live in unhealthy environmental conditions, exposing them to various risks such as air and water pollution, waste

accumulation, and overcrowding. These conditions contribute to the spread of diseases like Cholera and respiratory illnesses such as Asthma. As a result, the health and well-being of poor urban communities are severely affected.

Environmental health inequality arises because the burden of pollution and environmental hazards is not equally distributed. Poor and marginalized communities often face greater exposure to environmental risks compared to wealthier groups who have access to cleaner and safer living conditions. This imbalance highlights the need for inclusive policies and sustainable urban planning. Understanding the relationship between

urban poverty and environmental health inequality is essential for developing effective solutions that

promote social equity, public health, and sustainable development in urban areas.



**Figure: Environment and Human Health: Environment has several impacts on all our life**

The main objectives of studying urban poverty and environmental health inequality are as follows:

1. **To understand the concept of urban poverty**
  - Analyze the living conditions of people in urban slums and low-income areas.
2. **To examine environmental health conditions in urban poor communities**
  - Study issues like air pollution, water contamination, and poor sanitation.
3. **To identify major health risks associated with poor environmental conditions**
  - Understand the spread of diseases such as Cholera and Tuberculosis.
4. **To analyze the causes of environmental health inequality**
  - Explore factors like lack of infrastructure, weak policies, and economic inequality.
5. **To assess the impact on vulnerable groups**
  - Focus on children, women, and elderly populations.
6. **To evaluate existing government policies and programs**
  - Study their effectiveness in reducing poverty and improving environmental health.
7. **To suggest sustainable solutions**
  - Recommend measures for better urban planning, sanitation, and healthcare access.

## II. Methodology

Based on the analysis of existing methods and practices in the humanitarian mapping

community, we would like to frame the production of urban community data as an interdisciplinary methodological challenge as illustrated. The methodological challenge consists of designing a process that can provide rigorous evidence for policy and decision-making, whilst at the same time effectively promoting inclusive and empowering relations with the communities involved. This involves a dialogue with two different perspectives on mapping. Traditional mapping techniques (e.g. such as those used by geomatics companies and national mapping agencies) can produce spatial data with a high degree of adherence to spatial data quality standards. They follow strict guidelines and aim at a well-defined set of dimensions of spatial data quality (e.g. completeness, logical consistency, positional temporal and thematic accuracy). However, the application of these methods is costly and the technical expertise required excludes inhabitants from the poor urban communities from the process. In contrast, participatory mapping techniques (as the ones used in the humanitarian mapping community) are a good way to engage residents and local stakeholders in thinking differently about their relationship with the environment and the urban space; but as previously seen the extent to which the resulting data matches quality requirements is often uncertain. Operating at the intersection of these two mapping traditions, we see an interdisciplinary problem space that is associated with a twofold methodological challenge:

- (a) promote effective engagement and participation of local stakeholders and residents of urban communities, with the goals of building capacity, empowering them for creating local ownership and ensuring the sustainability of the geographic data generated;

(b) Assess and improve spatial data quality, in order to ensure that the resulting data is able to capture intra-urban inequalities and be used as trusted evidence for scientific research and policy making. To tackle this challenge, our methodological approach is based on participatory and collaborative mapping, but in addition to the methods adapted to by similar initiatives; the present approach introduces further steps of data production and validation to maximize spatial accuracy, whilst simultaneously engaging community members. Given the high density of poor urban neighborhoods such as slums and their morphological variety across countries using a methodology which is sensitive to the contextual characteristics is of crucial importance to creating a base for representative urban policies. The ultimate scope of this research is to propose a roadmap for systematic but context-aware participatory mapping of disadvantaged communities.

### III. Results

This project involved a diverse set of stakeholders comprising the slum communities, academic researchers, OSM volunteers, humanitarian organization practitioners, government and nongovernmental organizations. Harnessing the information generated by stakeholders to generate highly granular data on the spatial distributions of urban communities revealed two main findings: one, the completeness of the spatial data improved significantly adding new layer of spatial knowledge towards improving and understanding the spatial distribution of physical structures in the communities; and, two, there was successful engagement of community members. We thus frame structures at all had been mapped prior to the application of our method; thus, the entirety of spatial information presented is an outcome of our approach. On the other hand, in Kraal and Korogocho, although some features had already been mapped before our intervention (based only on satellite imagery), most of them needed further mapping and validation, as their accuracy has proven to be variable after verification on the ground. Interesting information regarding the quality of spatial data, which emerged from our mapping and validation process? It is noticeable that the spatial data, namely structures and roads, within examined slum areas have increased significantly as a result of our project. Even in communities such as Korogocho (Nairobi), where there was previous data and the number and length of roads seem to have been reduced, the overall accuracy and precision of the spatial data has been largely enhanced. The numbers in, with the exception of Kraal, are the result of online mapping and validation processes, as ground-trotting activities

have not been performed so far show the previous data (small inlet map) and current status (larger map) of some of the mapped communities.

### IV. Conclusion

Urban poverty and environmental health inequality are closely linked issues that pose serious challenges to sustainable urban development. The study highlights that people living in urban poor conditions, especially in slums, face greater exposure to environmental hazards such as air and water pollution, poor sanitation, and inadequate waste management. These conditions significantly increase the risk of diseases like Cholera and Asthma, ultimately affecting their quality of life.

The unequal distribution of environmental resources and healthcare services further deepens the gap between rich and poor in urban areas. While wealthier populations benefit from cleaner surroundings and better infrastructure, the urban poor continue to struggle with unhealthy living conditions and limited access to basic services. To address these challenges, it is essential to adopt inclusive and sustainable urban planning strategies. Improving access to clean water, sanitation, healthcare, and proper housing can significantly reduce environmental health risks. Additionally, effective government policies, community participation, and awareness programs are crucial in minimizing inequalities.

In conclusion, tackling urban poverty and environmental health inequality is vital for creating healthier, more equitable, and sustainable cities. A coordinated effort from governments, communities, and organizations can ensure a better future for all urban residents. In the cities where there was no active OSM community, capacity building and training of local teams was a viable alternative. In Nigeria (with no active OSM community) and Bangladesh (with a very active OSM community) there were also interesting contrasts from the fact that the majority of mapping has been carried out by postgraduate students on the one case (Nigeria) and experienced mappers on the other (Bangladesh). Although the experienced mappers' participation in Bangladesh enabled the mapping process to be completed faster than in the other sites, the trained students in Nigeria could achieve comparable results in a slightly longer time

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