



Community and Health Worker Perspectives on Environmental Hygiene and Disease Prevention in Urban Settings

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ABSTRACT:

Rapid urbanization has intensified environmental health challenges, particularly in informal settlements where poor sanitation, unsafe water, overcrowding, and weak governance increase vulnerability to disease. This study presents a qualitative narrative review of existing literature to provide a general understanding of community and health worker perspectives on environmental hygiene and disease prevention in urban settings. The review highlights that environmental hygiene practices are shaped by socio-ecological factors at individual, community, organizational, and policy levels. While community-based interventions and the involvement of Community Health Workers (CHWs) show potential in improving disease prevention, their effectiveness is often constrained by limited training, inadequate incentives, resource shortages, and governance gaps. The study concludes that improving environmental hygiene in urban contexts requires integrated, multi-sectoral strategies that combine infrastructure development, workforce strengthening, community engagement, and accountable public health governance.

CHAPTER 1

INTRODUCTION

Urban environments, particularly in low- and middle-income countries, present complex challenges to environmental hygiene and disease prevention due to rapid population growth, inadequate infrastructure, high population density, and socio-economic disparities (Shafique et al., 2024). Cities concentrate people, economic activity, and services, yet they also concentrate

health risks, creating conditions favorable to the transmission of communicable diseases and increased exposure to environmental hazards such as contaminated water, poor sanitation, inadequate waste disposal, and polluted air (Shafique et al., 2024; MacLeod et al., 2025). Understanding the perceptions of both community members and health workers regarding these risks, and how they relate to prevention practices, is essential to designing effective public health interventions that are contextually relevant and sustainable.



Environmental hygiene refers to the practices and infrastructural conditions that reduce pathogen exposure through safe water, sanitation, waste management, and household hygiene behaviors. In densely populated urban settings, gaps in these systems directly contribute to disease transmission cycles, including diarrheal illnesses, vector-borne diseases, and airborne infections (MacLeod et al., 2025). Interventions that promote improved sanitation infrastructure, hand hygiene, food hygiene, and protection against environmental contamination require not only technical solutions but also behaviour change at household and community levels (MacLeod et al., 2025). However, behaviour change is influenced by local perceptions of risk, social norms, and access to health information.

Community health workers (CHWs) often act as intermediaries between health systems and urban populations, particularly in underserved informal settlements where formal health services may be limited. Their roles encompass preventive education, case detection, referrals, and environmental health promotion, including reinforcing knowledge about hygiene practices (Morton & Senekane, 2024). Despite their strategic positioning, studies suggest that CHWs may have moderate knowledge and uneven practices regarding environmental health hazards, often lacking specific training in this domain and sometimes not perceiving environmental health responsibilities as core to their scope of work (Morton & Senekane, 2024). This gap underscores the need for capacity building and systematic integration of environmental health into CHW curricula to enhance disease prevention outcomes.

The perspectives of community members are equally important. Evidence shows that community-engaged research methods, such as focus groups and participatory workshops, enable researchers and policymakers to elicit local priorities and collaboratively identify solutions to environmental health challenges (Wang et al., 2021). These approaches reveal how residents interpret environmental health risks—such as water quality or inadequate sewage—and how they attribute responsibility for solutions among local authorities, community leaders, and households (Wang et al., 2021). Such insights are critical for adapting public health programmes to align with local perceptions and

capacities, which, in turn, can enhance community ownership and sustainability of hygiene practices.

Integrating the perspectives of communities and health workers supports the design of multifaceted interventions that address both structural determinants—like infrastructure and policy—and behavioural determinants—such as knowledge, attitudes, and daily practices (Shafique et al., 2024). As urban populations continue to grow, collaborative, context-sensitive strategies informed by local experiences and health worker insights are indispensable for preventing disease and improving environmental hygiene in urban settings.

1.2 BACKGROUND OF THE STUDY

Urbanization has transformed the global landscape, with more than half of the world's population now residing in cities, a figure projected to rise to nearly 68 % by 2050 (World Health Organization [WHO], 2024). Urban growth often occurs faster than the development of essential services such as potable water supply, sanitation, waste management, and health infrastructure, creating environmental conditions that elevate disease risk. Inadequate sanitation, contaminated water, poor waste disposal, air pollution, and overcrowded housing interact as environmental determinants of health that disproportionately affect the most vulnerable urban populations (WHO, 2024; Vardoulakis et al., 2016). These determinants are recognized as key drivers of both communicable diseases (e.g., diarrhoea, cholera, typhoid) and non-communicable conditions (e.g., respiratory infections) in urban settings (WHO, 2024; MDPI, 2025).

In low- and middle-income countries (LMICs), informal settlements and slums house a large segment of the urban poor who live in conditions marked by inadequate infrastructure and service delivery. These environments create favorable pathways for disease transmission, where lack of sanitation and safe water contributes to persistent health inequities (Shafique et al., 2024; SpringLink, 2007). Research shows that residents in deprived urban areas suffer higher burdens of infectious diseases because of contaminated water supplies and insufficient hygiene practices, which are compounded by socio-economic limitations and poor governance



(SpringLink, 2007). The phenomenon of urban environmental risk, where traditional and modern hazards coexist, further complicates disease patterns and necessitates nuanced public health responses (Environmental Risk Transition, 2025).

Environmental hygiene encompassing safe water access, sanitation, proper waste management, and personal hygiene behaviors is central to disease prevention in urban contexts (MDPI, 2025). Water, Sanitation, and Hygiene (WASH) studies demonstrate that improved infrastructure and hygiene education significantly reduce waterborne infections and improve health outcomes (MDPI, 2025). However, infrastructure alone is insufficient; behavioural factors such as handwashing, safe water handling, and community engagement in hygiene practices are critical for sustained public health impact (MDPI, 2025). Hence, integrated strategies that combine infrastructure investments, environmental management, and education are essential for achieving urban health goals.

At the frontline of community health in urban settings are community health workers (CHWs), who serve as essential links between formal health systems and local populations, particularly in underserved areas. CHWs support preventive health education, facilitate disease surveillance, and engage communities in adopting healthy practices (Ludwick et al., 2020). Despite their potential, urban CHW programmes in many LMICs remain under-researched and under-supported, with limited evidence on how their roles can be optimized to address complex urban health challenges (Ludwick et al., 2020). Understanding CHW knowledge, attitudes, and practices regarding environmental hygiene is therefore crucial, as these workers often shape how communities perceive and act on health risks. Furthermore, community perspectives provide valuable insight into local priorities, norms, and barriers around hygiene and disease prevention. Engaging residents through participatory research helps identify environmental hazards seen as most pressing and reveals local perceptions of responsibility for health improvements (Wang et al., 2021). Such community engaged approaches emphasize that sustainable public health solutions must be context-sensitive, co-designed with

communities, and responsive to lived realities (Wang et al., 2021).

1.3 PROBLEM STATEMENT OF THE STUDY

Rapid urbanization has significantly altered environmental and social conditions in cities, particularly in low- and middle-income countries where infrastructure development often fails to keep pace with population growth. Overcrowding, inadequate water supply, poor sanitation systems, ineffective solid waste management, and increasing air pollution continue to create environments conducive to the transmission of communicable diseases such as diarrheal illnesses, vector-borne diseases, and respiratory infections. Despite the availability of technical solutions and public health guidelines, preventable environmental health risks persist in many urban communities, especially within informal settlements and marginalized neighborhoods.

A critical gap exists between environmental health policies and their effective implementation at the community level. While governments and health agencies have introduced Water, Sanitation, and Hygiene (WASH) initiatives and urban health programs, the success of these interventions largely depends on community engagement, behavioral practices, and frontline health workforce capacity. However, limited attention has been given to understanding how community members perceive environmental hygiene risks and disease prevention strategies in their daily lives. Misconceptions, socio-cultural beliefs, economic constraints, and limited awareness may influence hygiene behaviors and reduce the effectiveness of public health interventions.

Simultaneously, community health workers (CHWs), who act as a bridge between formal health systems and urban populations, play a pivotal role in promoting environmental hygiene and disease prevention. Yet, evidence suggests that CHWs may face constraints such as inadequate training in environmental health, heavy workloads, unclear role definitions, and insufficient institutional support. These limitations can affect their ability to effectively educate communities, identify environmental hazards, and promote sustainable hygiene practices.



Furthermore, there is a lack of integrated research that simultaneously examines both community and health worker perspectives regarding environmental hygiene in urban settings. Most existing studies focus either on infrastructural challenges or disease outcomes, without adequately exploring the perceptions, attitudes, and lived experiences that shape preventive behaviors. Without this dual perspective, interventions risk being poorly adapted to local realities, culturally insensitive, or operationally impractical.

Therefore, the core problem addressed by this study is the insufficient understanding of how community members and health workers perceive environmental hygiene challenges and disease prevention practices in urban settings, and how these perceptions influence the effectiveness of public health interventions. Addressing this gap is essential to designing context-appropriate, participatory, and sustainable strategies that strengthen environmental hygiene practices and reduce disease burden in urban populations.

CHAPTER 2

LITERATURE REVIEW

A considerable section of the urban population in sub-Saharan Africa now lives in slum conditions, which puts them at risk for serious health issues and creates healthcare access disparities. Changes in social structures and health demands make it difficult to transition Ghana's Community-Based Health Planning and Services (CHPS) program from rural to urban regions. The execution of urban CHPS was investigated in this qualitative research based on nineteen in-depth interviews with CHOs and supervisory health workers. Health personnel have implemented urban CHPS with commitment, but there are still several operational challenges. These include things like limited incentives for volunteers, worries about the career progression of CHOs, shortages of first-aid drugs, and the need for training in Integrated Management of Neonatal and Childhood Illnesses (IMNCI). In spite of these limitations, the program has opened up avenues for creativity, such as adjusting home-visit timings and offering CHOs housing in the community. To increase efficacy and sustainability, it is necessary to make structural

alterations and provide greater assistance when adapting CHPS to the urban setting (**Nwameme, 2018**)

This research aimed to determine if mass drug administration (MDA) for schistosomiasis could be successfully implemented in urban informal settlements utilizing the Community Directed Intervention (CDI) technique. Further investigation was needed to determine the usefulness of CDI in urban settings for schistosomiasis, despite its effectiveness in treating other neglected tropical illnesses as onchocerciasis and lymphatic filariasis. Community health workers (CHWs) participated in focus groups after yearly MDA events as part of a longitudinal qualitative research design. The interpretive phenomenological analysis was used to thematically evaluate the data. Research showed that CDI was easier to execute when CHWs already had networks in place, knew the community well, and had chances to combine MDA with other health treatments. Nevertheless, there were some obstacles to overcome, such as a lack of motivation, misunderstandings and distrust among the community about the therapy, concerns about potential adverse consequences, unfavorable environmental factors, unstable situations, and a lack of time for execution. In order to manage urban schistosomiasis, the research found that CDI is possible. However, for it to be successful and sustainable, more community awareness, more incentives, and better time allocation are needed (**Odhiambo, 2016**)

Slum residents in Kampala, Uganda were the subjects of this qualitative research that used a socio-ecological framework to investigate the factors that encouraged and discouraged the adoption of WASH interventions. Community people participated in focus groups, and leaders and technocrats were interviewed as key informants. The results demonstrated that several variables at different levels influence the adoption of WASH treatments. Supportive factors included knowledge of vulnerability to water, sanitation, and hygiene (WASH)-related illnesses, the impact of peers, organizational advocacy for hygiene practices, community involvement, empowerment, and the implementation of local regulations. Nevertheless, adoption was impeded by obstacles such as a lack of information, cultural attitudes, financial limitations,



unsupportive surroundings, inadequate space, bad leadership, and political intervention, among others. Ultimately, the study shows that urban slums' WASH intervention uptake is affected by interrelated socio-ecological factors, which means that there needs to be a multi-level strategy that includes individuals, communities, organizations, and politicians for it to work and stay implemented (**Ssemugabo, 2020**)

In low- and middle-income cities, the problem of open defecation is especially pressing from a public health and governance perspective. There are still huge gaps in access and administration for WASH services in many metropolitan centers, even though there have been worldwide attempts to enhance them. Multiple factors contribute to the prevalence of open defecation, including economic inequality, poor infrastructure, poorly executed policies, and a lack of institutional coordination. In addition to negative effects on public health, it might lead to economic losses, environmental damage, and social inequalities, with a disproportionate impact on marginalized groups, children, and women. Tackling this dilemma calls for holistic strategies that enhance city administration, encourage community involvement, and use creative ways to efficient sanitation management. More equal access to sanitation and hygiene services may be achieved via public administration that prioritizes inclusivity and accountability. This will lead to healthier and more sustainable urban settings (**Neaemeka, 2025**)

Workers in the informal sector have rights to a safe and healthy workplace that have been overlooked, and this study seeks to put those rights into perspective. The majority of employees in most countries work in the informal economy, and the number of people in this sector who are not legally protected, have poor incomes, and are employed informally is growing fast in both developed and developing nations. Poverty, unemployment, working circumstances, housing conditions, and health disparities are interconnected, yet national and international governments have failed to recognize this. Few data exist about the scope of the issue and the effects on health caused by deteriorating informal employment conditions. But they frequently have to deal with substandard housing, unhealthy food, and an unsafe working environment on top of the health and safety risks

they already face. Not only do they lack access to comprehensive health care and social safety, but they also suffer disproportionately from poverty-related illnesses and injuries. The authors state that there are several ways in which the present setting for workers' health is different from previous eras. Consequently, the difficulties that workers and their families face due to informal labor and poor living conditions cannot be adequately addressed by traditional methods of occupational health and safety, such as the enforcement of good practices and standards. The character of globalization and urbanization necessitates a more people-centered empowerment approach and an integrated rights-based strategy of determinants at many levels. Ensuring the right to health of workers in the informal sector requires representation, organization, and engagement from these individuals. Similar to previous occurrences, social mobilization might be crucial (**Barten, 2008**)

Community health workers (CHWs) survey large regions to learn about residents' living situations. Unfortunately, there are no environmental health-focused sections in the existing CHW training programs. Little is known about the attitudes and actions of CHWs when it comes to environmental health concerns, and it seems that they lack understanding about these dangers. The goal of this research was to find out what CHWs in Nelson Mandela Bay (NMB) know, think, and do about environmental health risks. Methods: The research design used in this study was quantitative and cross-sectional. The survey was filled out by 110 people. There were 36 items spread over four parts of the questionnaire that were derived from the literature. Describing and inferential statistics were used for data analysis. Using a pre-test study improved reliability and validity. The results showed that views ($t = -2.308$, $df = 91.107$, $p = 0.023$) and behaviors ($t = -2.936$, $df = 62.491$, $p = 0.005$) differed significantly. The mean attitudes score of those with training in environmental health was 3.2365 with a standard deviation of 1.113, which is considerably lower than the mean attitudes score of those without such training (3.694 with a standard deviation of 0.894). As an added bonus, compared to those who were not taught in environmental health, those who were had a much lower mean practice score (practiced more often) ($m = 1.231$, $sd = 0.327$). Concerning the need for more training in



environmental health, 62% (n = 67) of CHWs expressed a desire for it. In sum: Environmental health concerns were mostly known to the CHWs to a modest extent. Even more encouraging was the fact that the majority of CHWs viewed environmental health risks in a favorable light. Environmental health is an important area, but CHWs must obtain specialized training in it. There is also a need for more research on the responsibilities of CHWs and their role in promoting environmental health (Morton, 2024)

Environmental Service (EVS) employees at three Addis Abeba coronavirus treatment facilities had their safety beliefs, perceptions, and the elements that influence their dangerous work behaviors analyzed in this qualitative research. Physical, chemical, biological, ergonomic, and mental dangers are only a few of the many that EVS employees confront on the job. We used key informant interviews and in-depth questionnaires with 25 employees to compile our data, which we then analyzed using a theme framework. According to the results, risky work behaviors were caused by a lack of proper safety management and supervision, unsafe working environments, and insufficient training and skills among employees. Risk exposure was exacerbated by workers' perceptions and the lack of institutional assistance. The research found that EVS workers' safety behaviors are impacted by both personal and environmental variables. A safe working environment can only be achieved via a combination of factors, including personal responsibility, strong management support, appropriate supervision, and sufficient resource allocation (Tamene, 2022)

CHAPTER 3

METHODOLOGY

3.1 RESEARCH DESIGN

This study adopts a qualitative narrative literature review design to develop a comprehensive understanding of community and health worker perspectives on environmental hygiene and disease prevention in urban settings. Rather than conducting primary data collection or empirical analysis, the study synthesizes existing scholarly literature to explore recurring themes,

conceptual insights, and contextual patterns related to the topic.

A qualitative review approach was selected because the objective of the study is interpretative in nature — to examine how environmental hygiene challenges, disease prevention strategies, community engagement, and frontline health worker experiences have been discussed and documented in prior research. This design allows for a broad yet structured examination of complex urban health issues across multiple socio-economic and geographical contexts.

3.2 NATURE OF THE STUDY

The study is **descriptive and exploratory**, focusing on generating a general understanding of:

- Environmental hygiene challenges in urban settings
- The role of Community Health Workers (CHWs) and Environmental Service (EVS) personnel
- Barriers and facilitators to WASH uptake
- Urban health inequities and governance issues
- Occupational health concerns in informal and healthcare environments
- Community-based intervention strategies (e.g., CHPS, CDI, MDA)

The review integrates evidence from qualitative and quantitative studies to identify common patterns, theoretical insights, and structural determinants influencing environmental health outcomes.

3.3 SOURCES OF DATA

This research relies entirely on **secondary data sources**, including:



- Peer-reviewed journal articles
- Published qualitative and quantitative studies
- Public health reports
- Policy documents
- Academic books and systematic reviews

The literature included studies addressing urban health in sub-Saharan Africa and other low- and middle-income countries, with particular focus on slum communities, informal settlements, and vulnerable urban populations.

Databases and sources consulted include:

- PubMed
- Google Scholar
- ScienceDirect
- SpringerLink
- BMC Public Health
- WHO reports and other international health organization publications

Only credible and academically recognized sources were included to ensure reliability and validity.

3.4 INCLUSION CRITERIA

The literature selected for review met the following criteria:

1. Focused on environmental hygiene, WASH, sanitation, or disease prevention in urban settings
2. Examined community or health worker perspectives

3. Addressed urban informal settlements, slums, or marginalized populations
4. Published in peer-reviewed journals or by reputable institutions
5. Written in English

Studies focusing solely on rural contexts without relevance to urban adaptation were excluded unless they provided comparative insights (e.g., CHPS transition from rural to urban areas).

3.5 METHOD OF LITERATURE REVIEW

A thematic narrative synthesis approach was used to organize and present findings from the literature. Rather than statistical meta-analysis, the study identifies recurring conceptual themes across the selected studies.

The review process involved:

1. Identification of relevant literature using keyword searches (e.g., “urban WASH,” “community health workers,” “environmental hygiene,” “urban slums,” “disease prevention,” “informal sector health”).
2. Screening abstracts and full texts for relevance.
3. Categorizing studies according to thematic areas.
4. Synthesizing key findings to provide an integrated understanding of the issue.

The findings are presented in a structured manner, highlighting:

- Urban environmental vulnerabilities
- Institutional and governance challenges
- Community-level behavioral determinants



- Workforce training and capacity gaps
- Socio-ecological influences on hygiene practices

3.6 THEORETICAL FRAMEWORK

The study is informed by the Socio-Ecological Model, which recognizes that environmental hygiene and disease prevention behaviors are influenced by multiple levels of interaction:

- Individual level (knowledge, beliefs, attitudes)
- Interpersonal level (peer influence, household practices)
- Organizational level (health systems, CHW programs)
- Community level (culture, space constraints, informal settlements)
- Policy level (governance, sanitation laws, public health policies)

This framework helps structure the literature synthesis and provides a multidimensional understanding of urban environmental health challenges.

3.7 ETHICAL CONSIDERATIONS

There was no need to recruit human subjects since the research used only secondary data that had already been published. As a result, official approval from an ethical committee was unnecessary. To prevent accusations of plagiarism and preserve academic integrity, all sources were properly referenced and cited.

CHAPTER 4

DISCUSSION

This study sought to provide a comprehensive understanding of community and health worker

perspectives on environmental hygiene and disease prevention in urban settings through a synthesis of existing literature. The discussion integrates findings across reviewed studies and interprets them within the socio-ecological framework guiding this research.

4.1 URBAN ENVIRONMENTAL VULNERABILITY AND HEALTH INEQUITIES

The reviewed literature consistently highlights that rapid urbanization, particularly in sub-Saharan Africa and other low- and middle-income regions, has produced significant environmental health inequalities. A large proportion of the urban population resides in informal settlements characterized by overcrowding, inadequate sanitation infrastructure, poor waste management, and limited access to safe water. These environmental conditions contribute to increased susceptibility to communicable diseases such as diarrheal illnesses, schistosomiasis, and other WASH-related infections. The persistence of open defecation, poor sanitation governance, and limited-service delivery reflects structural and administrative gaps rather than solely individual behavioral failures. Urban environmental health challenges are therefore deeply embedded in governance systems, economic inequalities, and infrastructural deficits. The literature suggests that without systemic reforms in urban planning and public administration, hygiene promotion efforts may yield limited sustainable impact.

4.2 COMMUNITY-BASED INTERVENTIONS IN URBAN CONTEXTS

Several studies reviewed demonstrate that community-based strategies such as Community-Based Health Planning and Services (CHPS) and Community Directed Interventions (CDI) offer promising approaches for disease prevention in urban settings. However, adapting rural health models to urban environments presents significant challenges. Urban communities often lack the cohesive social networks found in rural areas, making community mobilization and trust-building more complex. Nevertheless, where existing community structures, health worker networks, and participatory mechanisms are present, intervention feasibility improves. Integration of mass drug administration



(MDA) programs with other health initiatives enhances efficiency and acceptance. The literature underscores that urban adaptation requires contextual flexibility, including adjustments to service delivery methods, timing of outreach activities, and community engagement strategies.

4.3 ROLE OF COMMUNITY HEALTH WORKERS (CHWS)

Community Health Workers emerge as central actors in promoting environmental hygiene and disease prevention. Their familiarity with local contexts and direct engagement with households position them uniquely to influence hygiene behaviors. However, multiple studies reveal gaps in environmental health-specific training, limited incentives, unclear role definitions, and concerns about career progression. Interestingly, although CHWs often demonstrate positive attitudes toward environmental health issues, their knowledge levels may be moderate, indicating a need for structured capacity building. The absence of dedicated environmental health modules within training curricula limits their effectiveness in addressing sanitation, waste management, and environmental risk assessment comprehensively. Strengthening CHW training and institutional support is therefore critical for improving environmental hygiene outcomes.

4.4 SOCIO- ECOLOGICAL DETERMINANTS OF HYGIENE BEHAVIOUR

The socio-ecological model provides a useful lens for interpreting the complex interplay of factors influencing environmental hygiene practices. At the individual level, knowledge, beliefs, and perceptions of disease susceptibility shape behavior. At the household and peer level, social norms and practices significantly influence WASH adoption. Organizational factors such as health promotion efforts and supervision structures further affect implementation. At the community and policy levels, cultural beliefs, political interference, space constraints, governance quality, and enforcement of sanitation regulations either facilitate or inhibit hygiene uptake. The literature demonstrates that barriers and facilitators operate simultaneously across these

interconnected levels, reinforcing the need for multi-layered interventions rather than isolated solutions.

4.5 OCCUPATIONAL AND ENVIRONMENTAL HEALTH OF FRONTLINE WORKERS

Environmental Service (EVS) personnel and informal sector workers face compounded health risks due to hazardous working conditions, limited protective resources, and weak institutional oversight. Unsafe work behaviors are often linked to inadequate supervision, insufficient training, and poor safety management systems rather than individual negligence alone. This highlights the importance of integrating occupational health considerations within broader environmental hygiene strategies. Frontline workers cannot effectively promote safe environments if their own safety is compromised. Institutional accountability and management support are therefore fundamental components of sustainable urban health systems.

CHAPTER 5

CONCLUSION

This study sought to develop a comprehensive understanding of community and health worker perspectives on environmental hygiene and disease prevention in urban settings through a qualitative synthesis of existing literature. The review highlights that rapid urbanization, particularly in low- and middle-income countries, has intensified environmental health challenges, especially in informal settlements and marginalized urban communities. Overcrowding, inadequate sanitation, poor waste management, unsafe water access, and weak governance structures continue to create conditions that facilitate disease transmission and widen health inequities.

The findings from the literature consistently demonstrate that environmental hygiene in urban areas is influenced by interconnected socio-ecological factors operating at individual, household, community, organizational, and policy levels. Knowledge, attitudes, cultural beliefs, financial constraints, peer influence, and perceptions of disease risk shape hygiene behaviors at the individual and household levels. At the broader level, governance



systems, infrastructure availability, enforcement of sanitation policies, and institutional coordination significantly determine the success or failure of public health interventions.

Community-based strategies such as Community-Based Health Planning and Services (CHPS), Community Directed Interventions (CDI), and mass drug administration (MDA) programs show promise in addressing urban disease prevention challenges. However, adapting rural health models to urban contexts requires structural modifications, innovative delivery mechanisms, and stronger community engagement due to the fragmented social networks and complex environmental realities of urban areas. Sustainability of such programs depends heavily on community trust, adequate incentives, sufficient time allocation, and integration with other health initiatives.

The role of Community Health Workers (CHWs) and Environmental Service (EVS) personnel is central to improving environmental hygiene outcomes. While these frontline workers demonstrate commitment and generally positive attitudes toward environmental health promotion, gaps in training, limited institutional support, safety concerns, and insufficient incentives hinder their full potential. Strengthening workforce capacity through structured environmental health training, supportive supervision, and career development opportunities is essential for enhancing program effectiveness. Furthermore, the literature underscores that environmental hygiene and disease prevention are not merely technical or biomedical issues. They are deeply rooted in social justice, economic inequality, labor conditions, and urban governance. Informal sector workers and slum residents disproportionately bear the burden of environmental health risks, highlighting the need for inclusive, rights-based, and people-centered approaches to urban health policy.

In conclusion, improving environmental hygiene and disease prevention in urban settings requires a holistic, multi-sectoral strategy that integrates infrastructure development, community empowerment, workforce strengthening, and accountable governance. Sustainable progress will depend on coordinated efforts across public health systems, urban planning authorities,

policymakers, and communities themselves. Addressing environmental health challenges in urban contexts is therefore not only a public health imperative but also a fundamental step toward achieving equitable and resilient urban development.

RECOMMENDATIONS

6.1 Policy-Level Recommendations

- **Strengthen Urban Sanitation Governance:** Governments should prioritize inclusive and accountable urban sanitation policies that address infrastructural gaps in informal settlements. Clear regulatory frameworks, enforcement of sanitation bylaws, and coordinated inter-sectoral collaboration are essential for sustainable environmental health improvements.
- **Integrate Environmental Health into Urban Planning:** Environmental hygiene considerations should be incorporated into urban development plans, including housing, waste management systems, drainage, and water supply infrastructure. Urban planning authorities must work closely with public health departments to reduce environmental disease risks.
- **Adopt Rights-Based and Equity-Focused Approaches:** Policies should recognize environmental hygiene as a fundamental health right, particularly for marginalized urban populations and informal sector workers. Efforts must aim to reduce inequities in access to sanitation and hygiene services.

6.2 Health System and Institutional Recommendations

- **Strengthen Community Health Worker (CHW) Training:** Environmental health modules should be formally integrated into CHW training curricula. Specialized instruction on sanitation, waste management, environmental risk assessment, and hygiene promotion is essential to improve frontline effectiveness.



- **Provide Continuous Professional Development:** Ongoing training, supportive supervision, and mentorship programs should be implemented to enhance CHWs' skills and confidence in addressing environmental health issues.
- **Improve Incentive Structures and Career Progression:** Adequate financial and non-financial incentives should be provided to CHWs, volunteers, and community health committee members to maintain motivation and sustainability. Clear career progression pathways should also be established.
- **Enhance Occupational Health and Safety Measures:** Environmental Service (EVS) workers and informal sector workers should be provided with adequate protective equipment, safety training, and institutional support to reduce occupational hazards.

6.3 Community-Level Recommendations

- **Promote Community Engagement and Participation:** Environmental hygiene interventions should be co-designed with community members to ensure cultural relevance and local ownership. Participatory approaches strengthen trust and long-term sustainability.
- **Increase Community Sensitization and Awareness Campaigns:** Comprehensive awareness programs should address misconceptions, cultural barriers, and fears related to hygiene practices and disease prevention interventions such as MDA programs.
- **Encourage Peer-Led Behavior Change Strategies:** Since peer influence significantly affects hygiene practices, leveraging respected community members and peer networks can enhance the uptake of WASH and sanitation initiatives.

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