

Adalbertus F. Kamanzi<sup>1</sup>, Sylvia Shapumba<sup>2</sup>, Olivia M.D. Shilongo<sup>3</sup>

## The Sanitation Deficit in Informal Settlements: Interlinking Human Well-being and Business Survival in Namibia's DRC, Swakopmund

<sup>1</sup>University of Namibia, Oshakati Campus, Oshakati, 15001, Republic of Namibia;<sup>2</sup>Sam Nujoma Campus, University of Namibia, Private Bag 13301, 340 Mandume Ndemufayo Ave, Pionierspark, Windhoek, 13005, Republic of Namibia;<sup>3</sup>Erongo Regional Council, Private Bag 2943, Swakopmund, 13001, Republic of Namibia

### ABSTRACT

Informal settlements in Namibia face chronic sanitation challenges that jeopardize both the health and economic stability of their residents. This article presents a dual case study of the Democratic Resettlement Community (DRC) in Swakopmund, combining two original research projects to examine how poor sanitation affects both household well-being and small business performance. Using a hybrid conceptual framework that draws on environmental health theory and urban political ecology, the study analyses qualitative and quantitative data collected between 2021 and 2023. Findings from the first study reveal that inadequate sanitation infrastructure marked by open defecation, inaccessible public toilets, and exposure to waste leads to significant health costs, particularly for children, and forces households to divert income toward medical care and hygiene needs. The second study highlights how sanitation-related limitations, such as water scarcity, long travel distances to toilets, and customer aversion to unhygienic environments, lead to product spoilage, business closures, and heightened vulnerability to theft. Together, the findings demonstrate that sanitation is not a compartmentalized public health issue but a multidimensional urban development challenge that constrains both human well-being and economic productivity. The article recommends an integrated sanitation strategy led by municipalities, the Ministry of Health and Social Services, local entrepreneurs, and community groups. Such a strategy must prioritize affordable infrastructure, youth-led sanitation initiatives, and inclusive policy dialogue. Ultimately, achieving urban sustainability in Namibia demands that sanitation be reframed as both a health right and an economic enabler.

**Keywords:** Sanitation; informal settlements; household well-being; small business; urban sustainability

**Compliance with ethical standards.** Both the studies that form the empirical basis for this paper were approved by the Decentralized Ethical Committee at the University of Namibia (Certificates numbers: UNAM-DEC-HSS/07/04/2021 of 18/05/2021 AND DEC-OSH-0025 of 17/12/2022) and were conducted in accordance with the generally accepted scientific principles of the Declaration of Helsinki of the World Medical Association (2013 edition).

**For citation:** Kamanzi A.F., Shapumba S., Shilongo O.M.D. The Sanitation Deficit in Informal Settlements: Interlinking Human Well-being and Business Survival in Namibia's DRC, Swakopmund. *Gigiena i Sanitariya / Hygiene and Sanitation, Russian journal.* 2026; 105(1): 118–126. <https://doi.org/10.47470/0016-9900-2026-105-2-118-126> <https://elibrary.ru/rjaicu>

**For correspondence:** Adalbertus Fortunatus Kamanzi, e-mail: akamznzi@unam.na

**Contribution:** Kamanzi A.F. – Concept and design of the study, writing text, editing; Shapumba S. – collection of material and data processing, editing; Shilongo O.M.D. – collection of material and data processing, editing. All co-authors – approval of the final version of the article, responsibility for the integrity of all parts of the article.

**Funding.** The study had no financial support.

**Conflict of interest.** The authors declare the absence of obvious and potential conflicts of interest in connection with the publication of this article.

Received: June 15, 2025 / Accepted: December 2, 2025 / Published: March 13, 2026

Каманзи А.Ф.<sup>1</sup>, Шапумба С.<sup>2</sup>, Шилонго О.М.Д.<sup>3</sup>

## Дефицит санитарии в неформальных поселениях: взаимосвязь благополучия человека и выживания бизнеса в демократических поселениях для переселенцев в Свакопмунде в Намибии

<sup>1</sup>Университет Намибии, Ошакати, 15001, Республика Намибия;<sup>2</sup>Кампус Сэма Нуйомы, Университет Намибии, Пионирспарк, Виндхук, 13005, Республика Намибия;<sup>3</sup>Региональный совет Эронго, Свакопмунд, 13001, Республика Намибия

### РЕЗЮМЕ

Неформальные поселения в Намибии постоянно сталкиваются с проблемами санитарии, что ставит под угрозу как здоровье, так и экономическую стабильность для населения. В данной статье представлено двойное исследование демократического поселения для переселенцев (ДПП) в Свакопмунде, объединяющее два оригинальных исследовательских проекта для изучения влияния плохих санитарных условий на благополучие домохозяйств и эффективность малого бизнеса. Используя гибридную концептуальную основу, опирающуюся на теорию экологического здоровья и городскую политическую экологию, исследование анализирует качественные и количественные данные, собранные в период с 2021 по 2023 г. Результаты первого исследования показывают, что неадекватная санитарная обстановка из-за испражнений вне общественных туалетов, к которым нет доступа, не убранных отходов приводит к значительным расходам на здравоохранение, особенно для детей, и вынуждает домохозяйства направлять доходы на медицинское обслуживание и гигиенические нужды.

Второе исследование подчеркивает ограничения, связанные с санитарией, такие как нехватка воды, большие расстояния до туалетов и неприятие потребителями антисанитарных условий, что приводит к порче продукции, закрытию предприятий и повышенной уязвимости к кражам. В совокупности результаты показывают, что санитария — это не отдельная проблема общественного здравоохранения, а многомерная проблема городского развития, которая ограничивает как благополучие людей, так и экономическую производительность. В статье рекомендуется комплексная стратегия в области санитарии, возлагаемая муниципалитетами, Министерством здравоохранения и социальных служб, местными предпринимателями и общественными группами. Такая стратегия должна отдавать приоритет доступной инфраструктуре, инициативам в области

санитарии, возглавляемым молодёжью, и инклюзивному политическому диалогу. В конечном итоге достижение устойчивого развития городов в Намибии требует переосмысления санитарии как права на здоровье и фактора, способствующего экономическому развитию.

**Ключевые слова:** санитария; неформальные поселения переселенцев; благополучие домохозяйств; малый бизнес; устойчивое развитие городов

**Соблюдение этических стандартов.** Оба исследования, которые легли в основу данной статьи, были одобрены Децентрализованным этическим комитетом Университета Намибии (номера сертификатов: UNAM-DEC-HSS/07/04/2021 от 18.05.2021 г. и DEC-OSH-0025 от 17.12.2022 г.) и проводились в соответствии с общепринятыми научными принципами Хельсинкской декларации Всемирной медицинской ассоциации (в ред. 2013 г.).

**Для цитирования:** Каманзи А.Ф., Шапумба С., Шилонго О.М.Д. Дефицит санитарии в неформальных поселениях: взаимосвязь благополучия человека и выживания бизнеса в демократических поселениях для переселенцев в Свакопмунде в Намибии. *Гигиена и санитария*. 2026; 105(2): 118–126. <https://doi.org/10.47470/0016-9900-2026-105-2-118-126> <https://elibrary.ru/gjaicu> (на англ.)

**Для корреспонденции:** Адальбертус Фортунакус Каманзи, e-mail: akamznzi@unam.na

**Вклад авторов:** Каманзи А.Ф. — концепция и дизайн исследования, написание текста, редактирование; Шапумба С. — сбор материалов и обработка данных, редактирование; Шилонго О.М.Д. — сбор материалов и обработка данных, редактирование. Все соавторы — утверждение окончательного варианта статьи, ответственность за целостность всех её частей.

**Конфликт интересов.** Авторы декларируют отсутствие явных и потенциальных конфликтов интересов в связи с публикацией данной статьи.

**Финансирование.** Исследование не имело финансовой поддержки.

Поступила: 15.06.2025 / Принята к печати: 02.12.2025 / Опубликовано: 13.03.2026

## Introduction

Namibia's rapid urbanization over the past two decades has led to the proliferation of informal settlements, particularly in towns like Swakopmund, Windhoek, and Katima Mulilo. The Democratic Resettlement Community (DRC), located on the outskirts of Swakopmund in the Erongo Region, is one such settlement. Originally intended as a temporary resettlement area, DRC has evolved into a permanent, densely populated settlement with limited access to basic services, especially sanitation [1]. Despite intermittent interventions by the Swakopmund Municipality and civil society organizations, the sanitation situation in DRC remains precarious.

Sanitation plays a vital role in urban well-being. The World Health Organization defines sanitation as the provision of facilities and services for the safe disposal of human urine and faeces, as well as broader aspects of hygiene and waste management [2]. In informal settlements, however, sanitation is often characterized by infrastructural gaps, inadequate funding, and overburdened public facilities. These conditions expose residents to waterborne and vector-borne diseases such as cholera, hepatitis E, and diarrhoea [3]. In Namibia, outbreaks of hepatitis E since 2017 have been linked to poor sanitation in settlements like Havana and DRC [4]. Health-related costs, especially for children, disproportionately burden households with limited income, further entrenching cycles of poverty [5]. Beyond public health, sanitation also influences the viability of economic activity, particularly for small informal businesses that form the backbone of local economies. In places like DRC, entrepreneurs operate under precarious conditions, with many relying on informal water sources and lacking access to nearby toilets or waste disposal facilities. Research across African urban slums shows that inadequate sanitation infrastructure can reduce foot traffic, discourage consumer engagement, and force temporary business closures [6, 7]. In addition, time lost due to walking long distances to access toilets or fetch water often translates into lost revenue or increased risk of theft, particularly for women-run enterprises [8].

This article draws on two research projects conducted in DRC: one by Shilongo [9], which explores the effects of poor sanitation on household well-being, and another by Shapumba [10], which examines its impact on small business activities. Although conducted independently, these studies share a common empirical setting and expose interconnected dynamics. The combined analysis offers a comprehensive perspective on how sanitation-related exclusion operates across both domestic and economic domains.

To frame this investigation, the article draws on a hybrid conceptual framework. Environmental health theory offers a lens to understand how environmental exposures such as contact with faecal matter or lack of handwashing facilities lead to adverse health outcomes [3]. Urban political ecology (UPE), on the other hand,

allows for an interrogation of how political decisions, spatial planning, and infrastructural inequalities contribute to the reproduction of informal settlement vulnerabilities [11, 12]. The combination of these frameworks supports a multi-scalar understanding of how sanitation influences development outcomes in both private and public spheres.

This study aims to provide a holistic account of how sanitation inadequacies intersect with human development and economic survival in Namibia's informal settlements. It argues that sanitation must be viewed not only as a public health necessity but also as a precondition for equitable economic participation and urban citizenship. In doing so, it contributes to ongoing efforts to localize Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being), SDG 6 (Clean Water and Sanitation), SDG 8 (Decent Work and Economic Growth), and SDG 11 (Sustainable Cities and Communities).

**Sanitation and development in informal settlements.** Urban informal settlements in sub-Saharan Africa continue to grow rapidly due to rural–urban migration, population pressure, and limited access to formal housing. These settlements are often characterized by inadequate infrastructure, weak municipal oversight, and marginalized populations who live in conditions of extreme deprivation. Among the most pressing challenges in such environments is the issue of sanitation. Sanitation, as defined by the World Health Organization and UNICEF [2], refers not only to the disposal of human waste but also encompasses hygiene practices and access to clean water. In informal settlements, sanitation inadequacies present both a cause and consequence of poverty. The relationship between inadequate sanitation and development outcomes in informal settings has become a growing area of academic inquiry, as researchers, development practitioners, and governments alike grapple with how to address urban marginality in a sustainable and inclusive manner.

Research has consistently demonstrated that poor sanitation has a direct and measurable impact on health, particularly in densely populated areas where faecal contamination and improper waste disposal increase the incidence of communicable diseases such as diarrhoea, cholera, typhoid, and hepatitis E [3]. In Namibia, the outbreak of hepatitis E in informal settlements such as Havana and DRC Swakopmund between 2017 and 2021 exposed the country's vulnerability to sanitation-related epidemics and highlighted the limitations of emergency-driven public health responses [4]. The literature further underscores that the burden of sanitation-related illness disproportionately affects women and children due to their roles in caregiving, water collection, and domestic maintenance [13]. These effects undermine not only physical well-being but also educational outcomes, work productivity, and household income, thereby reinforcing the structural conditions of urban poverty.

**The human development consequences of poor sanitation.** From a human development perspective, the impact of poor sanitation extends beyond immediate health threats. It influences dignity,

safety, and social inclusion. The United Nations Development Programme [14] asserts that access to adequate sanitation is fundamental to the exercise of basic human capabilities and the enjoyment of rights. Scholars such as [8] argue that the inability of urban governments to provide safe sanitation services represents a form of spatial injustice, where particular populations are excluded from the benefits of citizenship. In this view, sanitation is not only a technical challenge but a question of political and social rights.

Poor sanitation facilities often mean that residents especially women must relieve themselves in open spaces or shared facilities that lack privacy and safety. Studies from Kenya, Uganda, and South Africa show that fear of violence and harassment while using communal toilets discourages use, particularly at night, thus exacerbating public health risks [15, 16]. In Namibia, anecdotal reports from the DRC Swakopmund and Katutura informal settlements indicate similar concerns, where the lack of street lighting and distance from homes to sanitation points present both a security and dignity hazard, especially for girls and women. Furthermore, the exposure to unhygienic environments diminishes the quality of life and leads to repeated medical expenses that many low-income households can scarcely afford. These linkages make sanitation central not only to public health but also to broader well-being and development goals.

**Sanitation and economic life: the neglected connection.** While the connection between sanitation and health is well established in development literature, less attention has been paid to the relationship between sanitation and economic activity, particularly in informal settlements. Yet recent studies have begun to explore how inadequate sanitation impairs livelihood strategies, disrupts micro-enterprises, and diminishes customer engagement. Small businesses operating in informal areas often lack access to clean water, waste disposal, or nearby toilet facilities, creating operational difficulties that can lead to reduced productivity, spoilage of goods, and closure of business operations [7]. Food vendors and other entrepreneurs reliant on hygiene-sensitive commodities face unique challenges when sanitation conditions are poor, as customers tend to avoid areas perceived as dirty or unsafe.

In their study of small-scale enterprises in Kibera, Kenya, Mwangi and Wamugo [17] found that traders lost between 10 to 20 percent of weekly earnings due to sanitation-related disruptions, including the need to abandon stalls to access distant toilets, customer dissatisfaction with unhygienic premises, and contamination of merchandise. Similar dynamics are observable in Namibian settlements such as DRC, where small businesses especially those selling cooked food, vegetables, and cosmetics report difficulty maintaining sanitary environments due to lack of infrastructure. These issues are compounded by theft, which often occurs when business owners are forced to leave their premises unattended in order to fetch water or use distant latrines. The result is a sanitation trap that entangles health, productivity, and economic resilience in a downward spiral.

**Sanitation, entrepreneurship, and resilience in the face of crises.** The COVID-19 pandemic added another layer of complexity to the sanitation-business nexus. On one hand, it raised public awareness about hygiene and led to the proliferation of handwashing stations and health messaging in many informal areas. On the other hand, the enforcement of lockdowns, curfews, and distancing measures disproportionately affected informal traders who rely on close interpersonal interaction and constant physical presence [18]. In places where sanitation was already inadequate, the pandemic both exposed and deepened existing vulnerabilities. Businesses that could not meet basic hygiene expectations risked losing customers or being shut down. Furthermore, households were pushed to prioritize spending on soap, water, and cleaning agents—resources already stretched thin by unemployment and disrupted income flows.

Resilience literature suggests that the capacity of informal businesses to survive under these conditions depends not only on individual entrepreneurial skill but also on the availability of basic infrastructure and institutional support [19]. In the absence of functioning sanitation systems, informal businesses remain precarious, with limited room for growth or diversification.

This perspective challenges the narrative of informal enterprise as inherently adaptable and innovative, arguing instead that structural constraints like sanitation failures impose hard ceilings on their potential. In the case of Namibia's DRC settlement, the convergence of pre-existing sanitation gaps with the COVID-19 shock provides a potent case for examining how environmental neglect impairs not just health, but economic life.

**Theoretical grounding: Environmental health and urban political ecology.** Two theoretical frameworks help make sense of the foregoing discussion. Environmental health theory emphasises the causal relationships between physical environments and health outcomes. According to this framework, the presence or absence of adequate sanitation, clean water, and waste management systems directly determines the risk of disease and overall well-being [3]. In this view, sanitation is a health determinant whose failure contributes to mortality, especially among children, and deepens gendered burdens in care work and domestic management.

Urban political ecology (UPE), on the other hand, situates sanitation within a broader socio-political landscape. UPE theorists argue that infrastructure in cities is not simply a matter of engineering but of power who decides what gets built, where, and for whom [11, 12]. By applying this lens, sanitation inadequacies in places like DRC Swakopmund are not accidental or merely technical but reflect systemic inequalities rooted in planning regimes, land tenure exclusions, and spatial marginalization. Informal settlements are often rendered invisible in city development plans or are subjected to contradictory forms of control and neglect. This results in fragmented infrastructure, reliance on NGOs and temporary fixes, and exclusion from long-term urban investment.

Together, these frameworks offer a powerful interpretive lens for the current study. Environmental health theory reveals how sanitation affects bodies and households; UPE explains why certain populations are systematically deprived of sanitation in the first place. The convergence of these perspectives enables a more holistic understanding of how sanitation matters not only as a public health imperative but as a condition of economic agency and urban citizenship.

## Materials and methods

This study adopted a comparative qualitative case study approach to examine how poor sanitation affects both household well-being and small business activities within the same informal settlement. The research draws on two interrelated theses: one by Shilongo [9], which investigates the impact of poor sanitation on the well-being of residents in the Democratic Resettlement Community (DRC) in Swakopmund, and the other by Shapumba [10], which focuses on how sanitation conditions affect small businesses operating in the same locality. The selection of DRC as the shared research site was strategic, given its prominence as a growing informal settlement in Namibia and its persistent infrastructural and public health challenges. A case study design was suitable for this inquiry because it allows for in-depth exploration of complex and context-specific issues within their real-life setting, enabling a nuanced understanding of both subjective experiences and systemic patterns [20]. Both underlying studies employed qualitative research as their principal epistemological orientation, although Shapumba's study [10] incorporated a supplementary quantitative component in the form of a structured questionnaire. This combination resulted in a sequential triangulation of data collection, wherein qualitative and quantitative instruments informed one another iteratively. The overarching logic of the current synthesis remains interpretive and exploratory, aimed at uncovering the lived experiences, coping strategies, and institutional relationships that shape sanitation-related vulnerabilities in DRC. The dual focus on health and economic outcomes necessitated a methodology capable of integrating diverse data types without privileging one form of evidence over another. Accordingly, this article embraces a multi-layered case study strategy in which both individual and business-level effects of sanitation are examined concurrently, underpinned by shared spatial and structural conditions.

The target population for the integrated study comprised residents and small business operators in DRC Swakopmund. Shilongo's research [9] focused on ordinary residents, particularly those managing households and caring for children, while Shapumba targeted small-scale entrepreneurs such as food vendors, informal retailers, and service providers [10]. In both studies, sampling was purposive, based on criteria of knowledge, relevance, and experience. For Shilongo [9], the inclusion criteria included household heads who had lived in DRC for more than one year and who were willing to discuss sanitation-related health and expenditure issues. For Shapumba [10], eligible participants were individuals who ran informal businesses within the settlement and who had experienced disruptions or challenges linked to sanitation conditions. Shilongo conducted interviews with fifteen participants [9], a sample size considered adequate for thematic saturation in qualitative research involving narrative data [21]. Shapumba's study [10] reached thirty business owners through a structured questionnaire and followed up with ten semi-structured interviews for in-depth elaboration. Although the numerical samples differed, both studies ensured representativeness by balancing gender, age, and business/residential typology. For the purposes of this article, the findings from both datasets are treated as complementary evidence rather than aggregate data, in line with the interpretive emphasis of qualitative case study methodology.

Data for both component studies were collected using a combination of qualitative methods, including semi-structured interviews, structured questionnaires, and direct observations. Shilongo relied primarily on semi-structured interviews guided by open-ended questions that explored sanitation facilities, hygiene practices, health expenditures, and coping strategies [9]. Observational notes were taken during field visits to complement interview data and to document environmental conditions, including latrine accessibility, waste accumulation, and water availability. The interviews were audio-recorded with participant consent and later transcribed for thematic analysis. Shapumba's study [10] employed a sequential mixed-methods design. First, a structured questionnaire was administered to capture baseline data on business type, sanitation infrastructure availability, frequency of sanitation-related business disruptions, and basic demographic information. Following this, in-depth interviews were conducted with selected participants to explore themes such as customer feedback, income loss, and sanitation-related safety concerns. Supplementary observational data were collected at business sites, focusing on proximity to sanitation points, cleanliness of operating areas, and presence or absence of water and waste disposal facilities. In both cases, data collection adhered to ethical principles of voluntary participation, anonymity, and informed consent.

The analysis followed a thematic content analysis approach, which is suitable for identifying, analysing, and reporting patterns across qualitative datasets [22]. For Shilongo's dataset, transcripts were coded manually using an inductive approach, allowing themes to emerge from the data rather than being imposed a priori [9]. Key themes included sanitation infrastructure gaps, exposure to human waste, health-related income expenditure, and community responses. For Shapumba's dataset, the questionnaire responses were analyzed using basic descriptive statistics to identify frequency distributions and trends, which were then triangulated with qualitative interview data to surface nuanced explanations [10]. Thematic coding focused on disruption patterns, business-owner coping mechanisms, and sanitation-linked loss of income or clientele. For this article, the findings from both studies were re-analyzed in light of the overarching conceptual framework that integrates environmental health theory and urban political ecology. This re-analysis aimed to connect micro-level experiences (e.g. illness, lost income) with macro-level institutional and spatial dynamics (e.g. municipal neglect, informal status of the settlement). The comparative approach not only facilitated cross-case insights but also enabled intra-settlement comparisons between residents and business actors an underexplored dimension in sanitation research.

To ensure credibility, both studies employed methodological triangulation, combining interviews, observations, and in Shapumba's

case [10], quantitative survey data. Prolonged engagement with participants, field notes, and member-checking during transcription further enhanced the trustworthiness of the findings. The research also paid attention to transferability by providing thick description of the research context, including the socio-spatial layout of DRC, the nature of sanitation services, and the demographic characteristics of respondents. Dependability was achieved through consistent application of the same instruments across participants, while confirmability was maintained through detailed documentation of coding decisions, analytical memos, and audit trails. Ethical approval was granted by the University of Namibia's Research Ethics Committee, and all participants were informed about the purpose of the research, their right to withdraw at any time, and the confidentiality of their responses. No identifying data were published, and care was taken to present findings respectfully and accurately.

The methodological design is not without limitations. First, the retrospective integration of two separate but related studies means that alignment in sampling, timing, and phrasing of questions was not always perfect. However, the shared context of DRC, overlapping timeframes, and conceptual resonance of the two topics provided a reasonable basis for methodological synthesis. Second, while the qualitative approach allows for rich insight, it does not permit generalization beyond the specific context of DRC. Nonetheless, the findings offer analytical generalizability and can inform similar studies and interventions in other Namibian informal settlements.

## Results

*The shared sanitation crisis in DRC Swakopmund.* The two empirical studies reveal a deeply entrenched sanitation crisis in the Democratic Resettlement Community (DRC) of Swakopmund, Namibia. Despite being a well-known and long-established informal settlement, DRC continues to suffer from infrastructural deficits that critically impair both residential life and commercial activities. The settlement lacks adequate sewerage systems, and residents report widespread open defecation, infrequent or unsafe access to public toilets, and the accumulation of waste in residential and commercial zones. Public latrines, where present, are often either locked, poorly maintained, or located at great distances from homes and businesses. These conditions have direct implications for health, income, and dignity.

In Shilongo's (2023) study [9], respondents consistently described sanitation as a daily stressor, citing foul smells, contaminated surroundings, and the difficulty of keeping children healthy in such an environment. Mothers in particular reported spending significant portions of their modest incomes on medicines and transport to clinics, especially during diarrhoeal outbreaks. While community members acknowledged that hygiene awareness had improved during the COVID-19 pandemic, the physical infrastructure remained unchanged. In some cases, residents noted that they or their children had become accustomed to sickness as a way of life. This normalisation of vulnerability, rooted in an environment saturated with waste and systemic neglect, echoes the critiques raised by urban political ecology scholars, who view such conditions not as accidental but as symptomatic of exclusionary urban planning.

Shapumba's [10] findings mirror this reality from an economic lens. Informal businesses operating in DRC encounter sanitation-related challenges that threaten their viability. Participants in her study cited the loss of customers due to unsanitary premises, damage to products especially food items because of flies and ambient filth, and the need to periodically abandon their businesses to access toilets or fetch water. These absences leave stalls unattended, increasing the risk of theft and further undermining business continuity. One female vendor recounted how she had to shut down her cooked food stall after repeated complaints from customers about the unhygienic state of her immediate environment, despite her efforts to keep it clean. The unsanitary surroundings stemmed not from her own practices but from the uncollected waste and poor drainage near her vending site.

**Health expenditure and economic burden.** One of the most striking convergences in both studies was the financial toll of poor sanitation. For households, the burden manifested in frequent visits to clinics, purchase of medications, and missed workdays due to illness. Respondents shared narratives of spending more on health care than on school supplies or nutritious food, creating cycles of deprivation. Shilongo's participants frequently mentioned children as the most affected, with repeated diarrhoeal episodes and respiratory problems linked to environmental pollution [9]. These conditions also placed stress on caregivers, primarily women, who were tasked with both domestic sanitation and care responsibilities.

For business owners, the economic costs were more directly tied to revenue loss. Shapumba's participants reported losing customers, experiencing spoilage of goods, and occasionally facing fines or reprimands from municipal inspectors who held them accountable for unsanitary conditions largely outside their control [10]. The indirect costs included stress, reduced operating hours, and reputational damage. In some instances, entrepreneurs attempted to relocate to cleaner areas within the settlement but encountered the same infrastructural problems. Others tried to build private latrines or install temporary washing stations, but these efforts were either too costly or unsustainable.

These dynamics reinforce the theoretical proposition of environmental health theory: that poor sanitation imposes measurable costs on health and productivity. In both domestic and commercial spheres, residents of DRC are not simply passive victims of their environment but are actively engaged in mitigation and survival strategies. Yet the repeated failure of municipal infrastructure limits the efficacy of these responses. Households and businesses are, in effect, subsidizing the state's absence through personal expenditure and lost income. This pattern reflects what Swyngedouw [11] describes as the "urbanization of injustice," wherein some populations are structurally exposed to higher burdens in order to reproduce urban economies that prioritize other zones of the city.

**Gendered dimensions of sanitation vulnerability.** Both studies reveal that women experience sanitation challenges in specific and intensified ways. For Shilongo's participants, women bore the primary responsibility for managing domestic hygiene, accompanying children to toilets, and cleaning up around homes [9]. They also disproportionately shouldered the burden of accompanying family members to health facilities when sanitation-related illnesses occurred. Women expressed feelings of shame, fatigue, and helplessness, especially when menstruating girls or elderly family members lacked access to safe and private toilet spaces. These findings echo broader feminist urban studies literature that links sanitation with bodily autonomy, dignity, and gendered labour.

Shapumba's study [10] similarly found that women entrepreneurs were more exposed to business losses due to sanitation-related constraints. Unlike male-owned businesses that could sometimes afford to operate in higher-traffic zones or negotiate informal protections, women vendors often worked closer to home and relied on limited sanitation access to manage both enterprise and caregiving duties. The need to take long breaks to attend to sanitation needs sometimes led to accusations of unreliability from customers or employers. Moreover, women reported feeling unsafe when using public toilets at night, which limited their ability to operate businesses during evening hours a key time for food sales and informal entertainment.

These gendered dynamics illustrate the intersection of sanitation, safety, and income. They underscore the argument that sanitation is not simply a technical service but a socio-political issue that mediates access to public space, economic participation, and bodily security. The dual burden on women as caregivers and entrepreneurs makes them uniquely positioned to demand and benefit from improved sanitation, yet also exposes them to compounded risks in the absence of targeted interventions.

**Community coping strategies and institutional response.** Both studies identified community-led initiatives as partial responses to sanitation failures. In Shilongo's research [9], residents described

forming informal cleaning groups, organising neighbourhood watch rotations to secure toilet areas at night, and building improvised pit latrines where possible. These efforts, while commendable, were hampered by resource constraints, lack of technical knowledge, and inconsistent municipal engagement. Many respondents expressed frustration with the local council, which they perceived as neglectful or dismissive of their concerns. Some mentioned past engagements with Non-Governmental Organizations (NGOs) that brought temporary relief such as distribution of soap or water tanks but no sustained improvements.

Shapumba's study [10] likewise found evidence of grassroots innovation. Vendors pooled resources to hire private waste collection services, relocated businesses to slightly elevated ground to avoid wastewater stagnation, and lobbied for access to municipal water points. However, institutional responses were described as sporadic and sometimes punitive. Business owners noted that health inspectors would issue warnings or threaten closure without offering assistance or addressing the root infrastructural problems. This created a paradox: while businesses were held to formal hygiene standards, they were denied the infrastructure needed to meet those standards. In this way, informality became both a condition and a justification for neglect.

The mismatch between community effort and institutional support illustrates the conceptual insights offered by urban political ecology. Sanitation in DRC is not simply absent it is unevenly distributed, politically mediated, and socially negotiated. The settlement's marginal status within Swakopmund's urban hierarchy means that it occupies a liminal space: visible enough to attract occasional interventions, but not fully integrated into planning or budgetary frameworks. Residents and entrepreneurs thus operate in a perpetual state of improvisation, where dignity, health, and income are continually at risk.

**Synthesis: Sanitation as a cross-cutting development constraint.** Taken together, the two studies demonstrate that sanitation in informal settlements should not be siloed as a health or environmental issue. Rather, it is a cross-cutting development constraint that affects personal well-being, economic viability, gender equality, and institutional trust. The lived experiences of DRC residents and business owners reveal how sanitation failures multiply disadvantage and force individuals to absorb the costs of systemic dysfunction. They also highlight the creativity and resilience of informal actors, who continue to adapt in the face of infrastructural abandonment.

The findings support the argument that improving sanitation must go beyond infrastructure provision to include meaningful engagement with users, alignment of institutional responsibilities, and recognition of the interlinkages between physical environments and socio-economic outcomes. Sanitation, in this light, becomes not only a technical target of development policy but a lens through which to assess the inclusivity and justice of urban governance.

## Discussion

**Reframing sanitation as a development priority.** The findings from the Democratic Resettlement Community (DRC) in Swakopmund reveal that sanitation is not merely a public health challenge but a multidimensional development constraint. The lived experiences of residents and small business owners confirm that sanitation inadequacies compromise health, diminish economic opportunity, erode human dignity, and reproduce gendered burdens. These empirical observations challenge the tendency in policy discourse to treat sanitation as a narrowly technical or infrastructure problem. Instead, the findings support a reframing of sanitation as a structural issue that reflects deeper inequalities in urban governance, resource allocation, and spatial citizenship.

Environmental health theory offers an entry point into understanding how exposure to unsanitary conditions, lack of clean water, and insufficient waste management systems produce adverse health outcomes. In both household and business contexts, residents of DRC face a high disease burden that directly

links to these environmental failures. The frequent outbreaks of diarrhoeal diseases, hepatitis E, and skin infections documented in the community are not isolated events; they are symptoms of a systemic absence of environmental care and infrastructure. As Prüss-Ustün et al. [3] contend, the physical environment is a major determinant of health, especially in low-income urban settings. In this case, the lack of basic sanitation has transformed the DRC settlement into a health hazard, disproportionately affecting the most vulnerable groups children, women, and the chronically ill.

Yet the significance of sanitation in DRC goes beyond its epidemiological dimensions. It functions as a barrier to social and economic participation. Informal businesses, which are essential to the settlement's economy, are undermined by the unsanitary conditions that drive away customers, spoil perishable goods, and create logistical and safety challenges. These businesses often run by women with limited mobility are caught in a double bind: held accountable to hygiene standards while being denied the infrastructure necessary to uphold those standards. This paradox points to a form of what Foucault might describe as disciplinary governance, where informal actors are simultaneously invisible in planning and hyper-visible in enforcement.

**Urban political ecology and spatial injustice.** Urban political ecology (UPE) provides a powerful lens to understand this contradiction. According to Swyngedouw [11], urban environments are not neutral or naturally evolved; they are politically produced through decisions about what infrastructure is built, for whom, and where. In DRC, sanitation infrastructure is both insufficient and unevenly distributed. This is not an accident but the outcome of planning practices that prioritize formal zones and exclude informal settlements from long-term development schemes. The result is a fragmented urban space where certain populations are consigned to infrastructural precarity and forced to improvise survival strategies. These structural exclusions manifest in the daily routines of DRC residents who queue for distant toilets, construct makeshift latrines, or risk safety to access sanitation services at night.

Moreover, the politics of visibility plays a critical role. Informal settlements like DRC are often recognized only during crises such as disease outbreaks or election campaigns after which they recede into neglect. This cyclical attention pattern hinders sustained investment and prevents meaningful community participation in urban planning. As Allen et al. [12] argue, the governance of informality is marked by a selective recognition that legitimizes interventions without extending rights. In the case of sanitation, this means that residents and entrepreneurs are addressed as beneficiaries of aid or regulation rather than as rights-bearing citizens entitled to dignified infrastructure. The implication is that sanitation is not only about physical systems but about power, recognition, and justice.

**Gendered vulnerabilities and the burden of care.** The discussion of sanitation in DRC is incomplete without acknowledging its gendered dimensions. Women in the settlement bear the primary burden of managing household hygiene, caring for sick family members, and navigating unsafe environments to access toilets and water. As noted in the findings, these responsibilities translate into emotional stress, time poverty, and financial strain. For women entrepreneurs, sanitation-related disruptions compromise income generation and heighten risks of theft, fatigue, and customer dissatisfaction. This feminisation of sanitation vulnerability reflects broader patterns in urban development, where women's reproductive and productive roles intersect with infrastructural gaps to produce layered disadvantage.

Feminist urban studies have long argued that access to infrastructure is a gendered issue, influencing women's mobility, safety, and economic agency [23]. In DRC, the absence of secure and clean sanitation facilities limits women's capacity to work during evening hours, undermines their bodily autonomy, and perpetuates dependency. These constraints are particularly harmful in the context of informal settlements, where alternative sources of income or protection are limited. The findings thus support the argument that sanitation must be understood not only

through technical and environmental lenses but also through a gendered perspective that foregrounds the differentiated impacts of infrastructural exclusion.

**Community agency and institutional fragmentation.** Despite these adversities, residents of DRC demonstrate considerable resilience and agency. Both studies documented examples of community-driven sanitation responses, including neighbourhood clean-ups, improvised latrines, and resource pooling for private waste collection. These initiatives speak to the capacity of informal actors to respond creatively to infrastructural gaps. However, such efforts are often under-resourced, unsustainable, and conducted without meaningful institutional support. The absence of coordinated municipal engagement renders these initiatives precarious, dependent on sporadic NGO involvement or local volunteerism.

This reality reflects a broader pattern of institutional fragmentation in sanitation governance. In many urban settings across sub-Saharan Africa, responsibility for sanitation is diffused across multiple agencies, with unclear mandates, limited budgets, and weak coordination mechanisms [6]. In DRC, this fragmentation translates into inconsistent waste removal, sporadic health inspections, and reactive rather than proactive interventions. Community members, despite being primary stakeholders, are often excluded from planning processes or consulted only after decisions are made. This dynamic reinforces the alienation of informal settlements from the urban core and perpetuates a cycle in which residents must fill the gaps left by the state.

**Sanitation and the Sustainable Development Goals (SDGs).** The findings of this study hold significant implications for Namibia's efforts to achieve the Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being), SDG 6 (Clean Water and Sanitation), SDG 8 (Decent Work and Economic Growth), and SDG 11 (Sustainable Cities and Communities). The sanitation crisis in DRC undermines all four of these goals by creating environments that are hazardous to health, unsupportive of enterprise, and excluded from urban sustainability frameworks. Unless sanitation is addressed as a cross-cutting issue, efforts to promote economic inclusion, gender equity, and urban resilience will be undermined by the daily realities of infrastructural deprivation.

Furthermore, the current findings highlight the importance of integrating sanitation into broader urban development strategies. Too often, sanitation is relegated to the domain of health or environmental departments, divorced from housing, enterprise, and spatial planning. A truly sustainable urban policy must recognise the interdependence of infrastructure, livelihoods, and citizenship. In the case of DRC, sanitation must be approached not only as a technical fix but as a transformative agenda that restores dignity, enhances economic potential, and embeds informal settlements within the vision of a just and inclusive city.

## Conclusion, policy recommendations, areas for further research

**Conclusion: Sanitation as a foundational development imperative.** This study set out to examine how poor sanitation in the Democratic Resettlement Community (DRC) of Swakopmund affects both the well-being of residents and the viability of informal businesses. Drawing on two in-depth case studies conducted in the same settlement, the research revealed that sanitation inadequacies are not only detrimental to public health but also constitute a structural barrier to economic sustainability, gender equality, and urban justice. Using the conceptual frameworks of environmental health theory and urban political ecology, the study demonstrated that sanitation failures are not isolated or incidental, but embedded in broader systems of urban inequality, institutional neglect, and spatial exclusion.

The analysis confirmed that residents particularly women and children bear the brunt of the health consequences associated with unsanitary environments, including increased susceptibility to diarrhoeal diseases, skin infections, and respiratory problems.

These health challenges generate a hidden but substantial economic cost, as households must spend limited income on treatment, transportation to clinics, and lost workdays. On the other hand, small business owners especially those selling food and hygiene-sensitive goods are directly affected by the lack of clean water, proper waste disposal, and accessible sanitation facilities. Customers avoid businesses perceived as unhygienic, while entrepreneurs lose time and income managing sanitation-related disruptions.

The empirical evidence also pointed to the gendered nature of sanitation burdens. Women's dual role as caregivers and economic actors intensifies their exposure to infrastructural inadequacies. They must manage both domestic hygiene and the spatial risks associated with running businesses in areas lacking basic services. Their safety, autonomy, and economic mobility are compromised by the absence of gender-sensitive sanitation solutions, particularly during nighttime or in the context of menstruation.

Yet amid these challenges, both studies documented evidence of community resilience. Residents and entrepreneurs are not passive victims; they improvise, cooperate, and adapt. Informal cleaning groups, private waste collection efforts, and advocacy for infrastructure upgrades all reflect a degree of local agency. However, the success of these grassroots initiatives is limited by the absence of sustained institutional support, fragmented governance structures, and minimal integration of informal settlements into urban development plans.

In conclusion, sanitation in DRC Swakopmund is not simply a health issue it is a development issue. It shapes who thrives, who suffers, and who is seen within the urban landscape. Sanitation must be reimagined not as a narrow utility service, but as a right, a resource, and a relational infrastructure that binds together health, economy, dignity, and justice. Any development intervention that fails to prioritise sanitation will continue to reproduce the very inequalities it seeks to address.

***Policy recommendations: Toward an integrated sanitation agenda.***

1. Develop an integrated sanitation framework at municipal level. The Municipality of Swakopmund, in collaboration with the Ministry of Health and Social Services and the Ministry of Urban and Rural Development, should adopt an integrated sanitation framework specifically tailored to informal settlements. This framework must move beyond fragmented interventions and establish clear mandates, timelines, and budget allocations for the installation, maintenance, and monitoring of sanitation infrastructure in areas like DRC. Coordination mechanisms between departments should be institutionalized to prevent duplication and policy drift. This framework must recognize sanitation as a cross-sectoral issue, interlinked with health, gender, enterprise, and housing.

2. Prioritize community-based sanitation innovations. Existing community efforts in DRC demonstrate a willingness to co-manage sanitation solutions. These efforts should be formally recognized and supported through financial incentives, training, and logistical assistance. The municipality can pilot community sanitation cooperatives, whereby trained local residents manage public toilets, waste collection, and hygiene promotion in partnership with government actors. Such a model would promote local employment, enhance service quality, and embed sanitation as a shared social responsibility rather than a top-down imposition.

3. Provide safe, gender-responsive sanitation infrastructure. Future sanitation infrastructure in DRC must account for gender-specific needs. Public toilet facilities should be located within safe walking distance, be well-lit, and include menstrual hygiene amenities. Security patrols or community-based watch systems should be strengthened to ensure the safety of women and children using facilities at night. Furthermore, sanitation planning must explicitly include women's voices, recognizing them not only as users but also as designers, managers, and evaluators of sanitation systems.

4. Embed sanitation support in informal business regulation. Given the economic impacts of sanitation deficiencies, informal business regulation should include a sanitation component. Vendors operating in designated public markets or streets should

be provided with access to clean water, portable handwashing stations, and nearby toilet facilities. Health inspections must shift from punitive models to enabling ones offering guidance, equipment, and referrals to support services rather than simply issuing warnings or fines. Partnerships with NGOs and private providers can help roll out sanitation kits for micro-enterprises, particularly food vendors and beauty service operators.

5. Localize and operationalize SDG targets in informal settlements. National and local authorities must translate global Sustainable Development Goal (SDG) targets into actionable, place-based interventions. For SDG 6 (Clean Water and Sanitation), this means setting specific, measurable targets for toilet-to-population ratios, water access points, and latrine maintenance schedules in informal areas like DRC. For SDG 8 (Decent Work and Economic Growth), sanitation infrastructure must be included in urban economic development plans. Municipal reporting systems should disaggregate progress by settlement type to ensure that gains are not concentrated only in formal urban areas.

6. Institutionalize participatory urban sanitation planning. Sanitation planning must become participatory and inclusive. Residents and small business owners of DRC possess intimate knowledge of spatial needs, usage patterns, and hygiene challenges. Participatory mapping, citizen audits, and feedback mechanisms should be institutionalized to ensure that sanitation projects reflect local realities. This participatory approach will also increase the likelihood of sustained usage and community stewardship of sanitation facilities. Moreover, it aligns with principles of urban justice and democratic accountability.

7. Establish a research and innovation hub on WASH and livelihoods. Namibia's public universities, research institutions, and technical colleges should consider establishing a multidisciplinary research hub focused on water, sanitation, and hygiene (WASH) and their intersection with informal livelihoods. Such a hub could document best practices, pilot low-cost technologies, and inform policy design. Community members from DRC and similar settlements could be engaged as citizen researchers or co-producers of knowledge, thereby bridging academic expertise with lived experience. This would not only improve policy relevance but also empower marginalized voices.

Sanitation is not simply about toilets, pipes, or bins it is about the kind of society we choose to build. In the Democratic Resettlement Community of Swakopmund, sanitation failures represent both a historical injustice and a continuing barrier to inclusive development. This article has shown that addressing these failures requires more than engineering fixes; it demands a political, ethical, and developmental commitment to dignity for all. If sanitation is seen as foundational rather than peripheral to human and economic flourishing, then settlements like DRC can be transformed from spaces of neglect into spaces of opportunity.

***Areas for further research.*** The present study has illuminated the multidimensional impacts of poor sanitation on both household well-being and informal economic activity in the Democratic Resettlement Community (DRC) of Swakopmund. By combining two complementary empirical studies under a unified conceptual framework, the article has contributed to an emerging body of knowledge that recognizes sanitation as a structural development issue. However, the findings also point to important avenues for further research, particularly regarding the spatial politics of urban infrastructure, the institutional arrangements governing sanitation delivery, and the lived experiences of marginalized urban populations in Namibia and similar contexts.

1. Investigating sanitation governance across informal settlements. One of the most pressing areas for further research concerns the governance of sanitation in informal settlements, particularly how decision-making, resource allocation, and service delivery are organized at municipal and regional levels. While this article has demonstrated the fragmented nature of sanitation governance in DRC, a systematic investigation into the institutional arrangements that shape sanitation outcomes across different urban areas in Namibia remains lacking. Comparative studies between settlements such as Havana in Windhoek,

Kuisebmond in Walvis Bay, and DRC in Swakopmund could shed light on the institutional variables that enable or hinder effective sanitation provision. Such research should interrogate the legal, administrative, and fiscal frameworks underpinning sanitation policy, with a view to identifying policy levers for reform.

2. Longitudinal studies on health and economic impacts. The current findings offer a snapshot of how poor sanitation affects households and businesses. However, longitudinal research would provide deeper insight into the cumulative and long-term consequences of sanitation inadequacies. Tracking a cohort of residents and informal entrepreneurs over multiple years could reveal patterns of chronic illness, educational disruption, livelihood shifts, and household expenditure trends attributable to sanitation deficiencies. Such research would not only strengthen causal inferences but also inform the design of targeted social protection and public health interventions in informal settlements.

3. Youth and sanitation innovation. Youth play a critical but under-explored role in shaping sanitation practices and innovations in informal urban settings. In DRC, young people are often involved in community cleaning campaigns, water collection, and peer hygiene education. Further research is needed to understand the aspirations, constraints, and capacities of youth as sanitation actors and innovators. Participatory action research could be used to co-design youth-led sanitation initiatives, particularly those leveraging low-cost technologies, digital tools, or social entrepreneurship models. Exploring how youth understand and navigate sanitation challenges can also contribute to more inclusive and future-oriented urban planning.

4. Sanitation and disability inclusion. Another under-examined dimension concerns the experiences of persons with disabilities (PWDs) in relation to sanitation infrastructure. The studies reviewed in this article did not focus explicitly on disability, but it is reasonable to assume that individuals with mobility impairments, visual impairments, or chronic illnesses face heightened barriers in accessing sanitation facilities. Future research should explore how sanitation design, location, and maintenance in informal settlements either enable or exclude PWDs. Methods such as life-history interviews, accessibility audits, and co-design workshops with disabled residents could provide valuable insights into inclusive sanitation planning.

5. The intersection of land tenure and sanitation investments. In many informal settlements, insecure land

tenure discourages residents and businesses from investing in sanitation improvements. There is a need for empirical research that examines how perceptions of land security influence household and entrepreneurial decision-making around sanitation. Such studies could investigate whether clearer tenure rights correlate with greater investment in latrines, hygiene infrastructure, or water storage facilities. Conversely, research might explore how tenure insecurity is used by state actors as a rationale for withholding sanitation services, thereby perpetuating cycles of infrastructural neglect.

6. Sanitation narratives and urban identity. Sanitation also has cultural, symbolic, and narrative dimensions that merit scholarly attention. How do residents of informal settlements perceive the meaning of cleanliness, dirt, risk, and dignity? What role does sanitation play in shaping urban identity, social stigma, and aspirations for mobility? Qualitative research using ethnographic methods, storytelling, or visual media could uncover the affective and moral geographies of sanitation. Such work would enrich dominant technical discourses by foregrounding the subjective and symbolic aspects of sanitation experience, including shame, pride, resilience, and resistance.

7. Climate change, water stress, and adaptive sanitation. Finally, with growing climatic variability, there is an urgent need to study the nexus between sanitation, water scarcity, and climate adaptation in Namibia's informal settlements. As DRC and similar areas face increasing water stress, traditional sanitation models such as waterborne sewerage systems may become unsustainable. Future research should explore the feasibility, acceptability, and environmental impact of alternative sanitation systems such as dry toilets, bio-digesters, or decentralized waste treatment units. This line of inquiry should include both technical assessments and community-level perceptions to ensure alignment between innovation and local acceptability.

The overarching lesson from the current study is that sanitation is a deeply relational issue connecting bodies to economies, infrastructure to identities, and spaces to systems of power. Future research must therefore move beyond narrow technical paradigms and engage with sanitation as a site of social negotiation, political contestation, and developmental possibility. By doing so, scholars can not only illuminate hidden dimensions of urban life but also contribute to policies and practices that promote dignity, equity, and sustainability in Africa's rapidly urbanizing contexts.

## References / Литература

- Pendleton W., Crush J., Nickanor N. *The State of Urban Food Insecurity in Namibia*. African Food Security Urban Network (AFSUN); 2020.
- World Health Organization & UNICEF. Progress on household drinking water, sanitation and hygiene 2000–2020: Five years into the SDGs; 2021.
- Prüss-Ustün A., Wolf J., Bartram J., Clasen T., Cumming O., Freeman M.C., et al. Burden of disease from inadequate water, sanitation and hygiene for selected adverse health outcomes: An updated analysis with a focus on low- and middle-income countries. *Int. J. Hyg. Environ. Health*. 2019; 222(5): 765–77. <https://doi.org/10.1016/j.ijheh.2019.05.004>
- Ministry of Health and Social Services. *Hepatitis E Outbreak Update*. Government of Namibia; 2021.
- Bartram J., Cairncross S. Hygiene, sanitation, and water: Forgotten foundations of health. *PLoS Med*. 2010; 7(11): e1000367. <https://doi.org/10.1371/journal.pmed.1000367>
- UN-Habitat. *Sanitation for all: Urban sanitation and hygiene strategy 2020–2025*; 2020.
- Scott P., Cotton A., Sohail M. Sanitation and the economic performance of small businesses. *Dev. Pract.* 2020; 30(3): 335–48.
- Mitlin D., Satterthwaite D. *Urban Poverty in the Global South: Scale and Nature*. Routledge; 2013.
- Shilongo O.M.D. *The Impact of Poor Sanitation on the Well-Being of the Residents of the Informal Settlement of DRC Swakopmund*. University of Namibia; 2025.
- Shapumba S. *Sanitation and Its Effects on Business Activities in Informal Settlements: A Case of Democratic Resettlement Community (DRC)*. University of Namibia; 2021.
- Swyngedouw E. *Social Power and the Urbanization of Water: Flows of Power*. Oxford University Press; 2004.
- Allen A., Lampis A., Swilling M., eds. *Untamed Urbanisms*. Routledge; 2017.
- Cairncross S., Hunt C., Boisson S., Bostoen K., Curtis V., Fung I.C.H., et al. Water, sanitation and hygiene for the prevention of diarrhoea. *Int. J. Epidemiol.* 2010; 39(Suppl. 1): i193–205. <https://doi.org/10.1093/ije/dyq035>
- United Nations Development Programme. *Human Development Report 2022: Uncertain Times, Unsettled Lives*; 2022.
- Amnesty International. *Insecurity and indignity: Women's experiences in the slums of Nairobi, Kenya*. 2010. Available at: <https://www.amnesty.org/en/documents/AFR32/002/2010/en/>
- Corburn J., Hildebrand C. Slum sanitation and the social determinants of women's health in Nairobi, Kenya. *J. Environ. Public Health*. 2015; 2015: 209505. <https://doi.org/10.1155/2015/209505>
- Mwangi P., Wamugo B. The sanitation–enterprise nexus: Effects of poor sanitation on informal businesses in Kibera, Nairobi. *Urban Afr. J.* 2019; 2(1): 45–59.
- Skinner C., Watson V. The informal economy in cities of the global South: Challenges and opportunities for urban planning. *Urban Plan.* 2021; 6(1): 1–4.
- Meagher K. *The Informal Economy and the State in Africa: Understanding the Political Impact of Market Restructuring*. Zed Books; 2020.
- Yin R.K. *Case Study Research and Applications: Design and Methods*. Thousand Oaks: SAGE Publications; 2018.
- Guest G., Bunce A., Johnson L. How many interviews are enough? *Field Methods*. 2006; 18(1): 59–82.
- Braun V., Clarke V. Using thematic analysis in psychology. *Qual Res. Psychol.* 2006; 3(2): 77–101.
- McFarlane C., Silver J. Navigating the city: Dialectics of everyday urbanism. *Urban Stud.* 2017; 54(7): 1449–66.

## About the authors

Adalbertus F. Kamanzi, PhD, Senior Lecturer, Coordinator MA in Development Studies program, Oshakati Campus, University of Namibia, Oshakati Campus, Oshakati, 15001, Republic of Namibia, <https://orcid.org/0000-0002-6464-0715> E-mail: akamznzi@unam.na

*Sylvia Sharumba*, MA in Development Studies, Assistant Faculty Officer, Sam Nujoma Campus, University of Namibia, Windhoek, 13005, Republic of Namibia

*Olivia M.D. Shilongo*, bachelor's degree of Adult, MA in Development Studies, Community Liaison officer, Erongo Regional Council, Private Bag 2943, Swakopmund, 13001, Republic of Namibia

### **Сведения об авторах**

*Каманзи Адальбертус Фортунатус*, канд. наук, старший преподаватель, координатор программы магистратуры по исследованиям в области развития, Отдел общественных наук, кампус Ошакати, Университет Намибии, Ошакати, 15001, Республика Намибия, E-mail: akamznzi@unam.na

*Шанумба Сильвия*, магистр в области развития, ассистент преподавателя, кампус Сэма Нуйомы, Университет Намибии, Пионерспарк, Виндхук, 13005, Республика Намибия

*Шилонго Оливия М.Д.*, бакалавр высшего образования, магистр в области развития, специалист по связям с общественностью, Региональный совет Эронго, Свакопмунд, 13001, Республика Намибия