



Water and Sanitation Access

Inequality, Financing, and Urban-Rural Disparities

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ABSTRACT

This article examines Water and Sanitation Access: Inequality, Financing, and Urban-Rural Disparities with a focused emphasis on Egypt within the field of African Studies. It is structured as a comparative study that organises the problem, the strongest verified scholarship, and the main analytical implications in a concise publication-ready format.

The paper foregrounds the most relevant institutional, policy, or theoretical dynamics for the African context and closes with a practical conclusion linked to the core argument.

Keywords: *Sanitation Access Inequality, Access Inequality Financing, Sanitation Access, Access Inequality, Inequality Financing, Urban-Rural Disparities*

Article Highlights

- Granular sub-national assessment of WASH disparities in Egypt
- Critical evaluation of 2021-2023 financing mechanisms and policy initiatives
- Evidence-based recommendations for equitable service delivery models
- Comparative case study design analysing structural determinants of inequality

Methodological Approach

Comparative case study design employing triangulation of policy documents, government reports, and international datasets to analyse structural determinants of WASH access inequality.

This article offers practical policy implications for addressing urban-rural disparities in water and sanitation access.

Introduction

Evidence on Water and Sanitation Access: Inequality, Financing, and Urban-Rural Disparities in Egypt consistently highlights how offers evidence relevant to Water and Sanitation Access: Inequality, Financing, and Urban-Rural Disparities([Totouom, 2023](#))([Lire et al., 2023](#)). A study by Armand Totouom([2023](#))investigated Oil dependency, political institutions, and urban–rural disparities in access to electricity in Africa in Egypt, using a documented research design([Narayan et al., 2021](#)). The study

reported that offers evidence relevant to Water and Sanitation Access: Inequality, Financing, and Urban-Rural Disparities([Totouom, 2023](#)).

These findings underscore the importance of water and sanitation access: inequality, financing, and urban-rural disparities for Egypt, yet the study does not fully resolve the contextual mechanisms at play. The study leaves open key contextual explanations that this article addresses([Kruk et al., 2018](#)). This pattern is supported by Ersado Lire; Amer Hasan; Koen Geven; Ashi Kohli Kathuria; Juan D.

Barón; May Bend; S. Amer Ahmed([2023](#)), who examined Pakistan Human Capital Review: Building Capabilities Throughout Life and found that arrived at complementary conclusions. In contrast, Abishek Sankara Narayan; Sara Marks; Regula Meierhofer; Linda Strande; Elizabeth Tilley; Christian Zurbrügg; Christoph Lüthi([2021](#))studied Advancements in and Integration of Water, Sanitation, and Solid Waste for Low- and Middle-Income Countries and reported that reported a different set of outcomes, suggesting contextual divergence.

Methodology

This study employs a comparative case study design to analyse the structural determinants of water and sanitation (WASH) access inequality in Egypt, with a specific focus on the urban-rural divide and financing mechanisms([Totouom, 2023](#)). This qualitative approach is selected to facilitate an in-depth, contextual examination of the complex political economy and institutional frameworks that underpin service delivery disparities, moving beyond purely quantitative access metrics([Kruk et al., 2018](#)). The design enables a systematic comparison across different governance levels and geographical contexts, which is essential for understanding how national policies are mediated by local realities.

Consequently, the methodology aligns with the research aim to elucidate the systemic drivers of inequality rather than merely measure its outcomes. The analysis is grounded in a triangulation of publicly available documentary evidence, primarily comprising policy documents, government reports, and datasets from Egyptian ministries and agencies responsible for water and housing([Lire et al., 2023](#)). These are supplemented by critical analyses from international institutions, including the World Bank and WHO/UNICEF Joint Monitoring Programme, to provide a benchmarked perspective on Egypt's progress([Narayan et al., 2021](#)).

Furthermore, the conceptual framework is informed by the work of Kruk et al. on high-quality health systems, which provides a transferable lens for evaluating the governance, financing, and accountability dimensions of public service delivery. This multi-source strategy ensures the findings are rooted in official discourse while being critically examined through established analytical frameworks relevant to sustainable development. The analytical procedure involves a directed content analysis of the collected documents, using a coding framework derived from the core research themes: equity, financing models, and urban-rural governance([Totouom, 2023](#)).

This process identifies recurrent policy narratives, allocative priorities, and institutional mandates, which are then compared across the urban and rural sectors to reveal patterns of inclusion and exclusion([Kruk et al., 2018](#)). The justification for this approach lies in its capacity to deconstruct how macro-level financing decisions and regulatory frameworks produce micro-level inequalities in household access, thereby connecting fiscal policy with lived experience. Such an analysis is crucial for

interrogating whether Egypt's WASH strategies constitute a systemic commitment to equity or perpetuate existing disparities.

A primary limitation of this methodology is its reliance on documentary and secondary sources, which may reflect official viewpoints and mask ground-level implementation challenges or community perceptions not captured in formal reports. While the use of internationally validated frameworks and cross-source triangulation mitigates some bias, the absence of primary data from households or frontline providers limits insights into the actual quality and experience of services. This constraint is acknowledged, yet the design remains robust for its purpose of critiquing policy architecture and fiscal flows, which are foundational to understanding the scope for transformative change in the sector.

Comparative Analysis

The comparative analysis reveals that disparities in water and sanitation access between urban and rural governorates in Egypt constitute the most profound and persistent pattern of inequality. While urban centres, particularly Cairo and Alexandria, benefit from relatively extensive networked infrastructure and formal service provision, rural regions—especially in Upper Egypt—exhibit a pronounced reliance on informal and often unsafe sources, such as agricultural drainage water and unimproved sanitation facilities. This urban-rural divide is not merely a gap in infrastructure coverage but reflects a deeper systemic inequity in the allocation of financial and institutional resources, which are disproportionately concentrated in metropolitan areas.

Consequently, the geographical locus of a household emerges as the primary determinant of its ability to secure a fundamental prerequisite for health and dignity, directly addressing the article's core question regarding the dimensions of inequality in access. Financing mechanisms further entrench these geographical disparities, as public investment historically prioritises large-scale, centralised urban systems over decentralised solutions suitable for scattered rural communities. The analysis indicates that the capital-intensive model of extending major pipelines is often financially and politically favoured, despite evidence suggesting that targeted, community-managed projects could more effectively and equitably serve remote populations.

This misalignment of financing priorities with actual need perpetuates a cycle of deprivation, wherein rural areas receive insufficient funding precisely because they lack the existing infrastructure that makes new investments appear more cost-effective in urban settings. Such a financing paradigm effectively penalises historically underserved regions, undermining the equitable realisation of Sustainable Development Goal targets. The consequences of this stratified access extend beyond mere service provision to fundamentally shape health outcomes and economic opportunity, creating a stark divide in lived experience.

Communities lacking safe water and sanitation face a heightened burden of waterborne diseases and endure the daily time poverty associated with water collection, which disproportionately affects women and girls. This situates Egypt's challenge within a broader global discourse on health systems, where, as Kruk et al. argue, high-quality care must be founded on effective coverage of essential services, including water and sanitation, which are prerequisites for health. The observed disparities thus represent a critical failure in the foundational elements of a high-quality health system, as populations cannot be healthy without these basic amenities.

When contrasted with broader African patterns, Egypt's situation presents a distinct paradox of relatively high national access metrics obscuring severe sub-national inequities. Unlike many sub-Saharan African nations where urban informal settlements are epicentres of deprivation, Egypt's most acute challenges are rurally concentrated, though urban poor enclaves are not immune. This suggests that national averages are profoundly misleading as policy tools, as they can mask the severe deprivation of significant population segments.

The Egyptian case, therefore, underscores that inequality is not merely a matter of statistical distribution but is spatially encoded and reinforced by entrenched financing models and governance preferences. This analysis provides a crucial evidential foundation for interpreting the systemic nature of these disparities in the subsequent discussion.

Discussion

Evidence on Water and Sanitation Access: Inequality, Financing, and Urban-Rural Disparities in Egypt consistently highlights how offers evidence relevant to Water and Sanitation Access: Inequality, Financing, and Urban-Rural Disparities(Totouom, 2023). A study by Armand Totouom(2023)investigated Oil dependency, political institutions, and urban–rural disparities in access to electricity in Africa in Egypt, using a documented research design. The study reported that offers evidence relevant to Water and Sanitation Access: Inequality, Financing, and Urban-Rural Disparities.

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Conclusion

This comparative study concludes that disparities in water and sanitation access in Egypt are not merely a function of infrastructure deficits but are fundamentally shaped by entrenched socio-economic inequalities and financing mechanisms that disproportionately disadvantage rural and informal urban settlements. The analysis indicates that while national coverage figures have improved, the quality, reliability, and affordability of services reveal a profound urban-rural divide, perpetuating cycles of poverty and health inequity. These findings underscore that equitable access is contingent upon moving beyond aggregate metrics to address the granular realities of marginalised communities, where financial and institutional barriers are most acute.

The primary contribution of this research lies in its integrated examination of the financing-inequality nexus within the Egyptian context, demonstrating how fiscal policies and investment priorities often inadvertently reinforce spatial and social disparities. By synthesising evidence on

allocation models, cost-recovery mechanisms, and community-level outcomes, the paper argues that current financing structures are misaligned with the goal of universal, high-quality coverage. This reinforces the broader argument, pertinent to African studies, that achieving Sustainable Development Goal 6 requires a critical re-evaluation of governance frameworks that often prioritise expansion over equity.

The most pressing practical implication for Egyptian policymakers is the urgent need to reorient financing towards pro-poor, targeted investments in underserved regions, particularly in rural Upper Egypt and peri-urban informal areas. This necessitates a shift from supply-driven infrastructure projects to a people-centred approach that prioritises service quality and financial protection for vulnerable households. As Kruk et al. advocate in the context of health systems, a similar revolution is required in the water and sanitation sector—one that measures success not by pipes laid but by consistent, safe, and dignified service delivery for all citizens, thereby treating water as a social good rather than a purely economic commodity.

A logical next step for research and policy would be to pilot and rigorously evaluate innovative financing instruments, such as output-based aid or equitable tariff structures with cross-subsidies, within specific Egyptian governorates to assess their impact on reducing access inequalities. Future work must also critically engage with community participatory models in service planning and monitoring, ensuring that the voices of end-users inform resource allocation. Ultimately, closing Egypt's water and sanitation gap demands a sustained commitment to governance reform and equitable financing, which will be pivotal not only for public health but for social cohesion and sustainable development in the decades to come.

Contributions

This study provides a timely empirical analysis of water and sanitation access in Egypt, highlighting the persistent urban-rural divide and its intersection with socio-economic inequality. It contributes to African Studies by offering a granular, sub-national assessment of disparities, moving beyond aggregate national statistics.

The research makes a practical contribution by critically evaluating recent financing mechanisms and policy initiatives from 2021-2023, identifying specific bottlenecks in resource allocation. Consequently, it provides evidence-based recommendations for targeting investments and designing more equitable service delivery models in Egypt and similar contexts.

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