



Water, women, and work: A gendered analysis of resource scarcity

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Abstract

Water scarcity is a growing global concern, with profound implications for gender relations and socio-economic development. This paper investigates the gendered dimensions of water scarcity, focusing on how limited access to water disproportionately affects women's roles, responsibilities, and opportunities for economic and social mobility. Through a sociological lens, the study explores how traditional gender roles intersect with systemic inequalities, particularly in rural and underdeveloped regions. Using qualitative and secondary data from global reports and case studies, the research highlights how water scarcity exacerbates the unpaid labor burden on women, limits their educational and professional opportunities, and reinforces patriarchal power structures. The paper concludes with policy recommendations aimed at integrating gender-sensitive approaches into water governance and resource management.

Keywords: Water scarcity, women, socio-economic, roles and responsibility, social mobility

Introduction

Water scarcity is one of the most pressing environmental challenges of the 21st century, with far-reaching implications for both global ecosystems and human populations. While water scarcity affects millions worldwide, its impacts are not distributed equally. Women, particularly in rural and marginalized communities, experience the consequences of water shortages more intensely than men due to their historically entrenched roles as primary water collectors and household managers. This gendered aspect of water scarcity has often been overlooked in mainstream environmental and development discourses, despite the fact that the implications extend far beyond daily water collection. As women are primarily responsible for securing and managing household water supplies, their experiences with water scarcity are multifaceted, encompassing not only physical burdens but also social, economic, and health-related consequences. This paper aims to explore the intersection of gender and water scarcity, focusing on how the unequal distribution of water access impacts women's lives, well-being, and economic opportunities.

The growing global water crisis, exacerbated by climate change, population growth, and urbanization, has placed increasing strain on water resources in many regions, particularly in the Global South. Women in these areas often spend hours each day walking long distances to fetch water, a task that hinders their access to education, income-generating activities, and basic self-care. This study draws on existing literature and empirical data to argue that water scarcity not only limits women's participation in economic and social life but also reinforces gender inequalities. Women's unpaid labor in water collection, coupled with the disproportionate health risks they face, highlights the urgent need for gender-sensitive water management policies. By examining the specific challenges women face in water-scarce regions, this paper aims to contribute to the understanding of how gender inequality intersects with environmental stressors, urging policymakers to adopt more inclusive, equitable approaches to water governance and resource management.

Literature Review

The gendered impacts of water scarcity have been the subject of significant academic inquiry. Early studies primarily focused on water scarcity as a technical or resource management issue, but more recent research has sought to incorporate social factors into this discourse.

- Agarwal (2010) ^[1] highlights that women in rural communities are typically responsible for water collection and domestic water management. In the absence of reliable water systems, women often face significant physical and time burdens that limit their ability to engage in income-generating work or education.
- Shiva (2002) ^[3] argues that water scarcity is a manifestation of larger environmental and social inequalities. She critiques water privatization as a system that disproportionately harms women, who have historically been marginalized in terms of access to water resources.
- According to UN Water (2021) ^[4], women and girls are responsible for water collection in 80% of households without on-premises water access. This role has social implications as it reinforces women's unpaid labor in the household, which is not typically recognized in national economic accounting.
- Fisher & Carr (2015) ^[2] explore how water insecurity in women's lives is not just about access but about the intersection of social, economic, and environmental factors that amplify their vulnerability. They argue that without addressing gender inequality, water scarcity cannot be fully mitigated.

These studies point to the crucial role gender plays in shaping the experiences of water scarcity and highlight the need for gender-sensitive water governance.

Methodology

This paper employs a qualitative methodology, synthesizing secondary data from academic articles, policy reports, and case studies on water scarcity and gender. The research focuses on the lived experiences of women in water-scarce

regions, drawing from data provided by organizations such as UN Women, Water Aid, and WHO. These sources provide both global and regional perspectives on how women are affected by and respond to water scarcity.

Additionally, the paper draws on sociological theories of gender, labor, and inequality to analyze the intersectional dynamics of water access. The findings presented are based on case studies from various regions, including sub-Saharan Africa, South Asia, and Latin America, which are disproportionately affected by water scarcity.

Findings

- **The Burden of Unpaid Labor:** In water-scarce regions, women and girls often spend several hours per day collecting water. For instance, in parts of rural Africa, women walk an average of 5 kilometers daily to collect water, spending 3-4 hours each trip. This unpaid labor contributes to a significant loss of productive time. According to Water Aid (2020) ^[5], this is one of the primary reasons why women are unable to pursue full-time education or employment.
- **Impact on Education and Employment:** Water collection often takes precedence over other activities. In India, it is reported that over 40% of rural girls drop out of school due to the time spent collecting water (UNICEF, 2019) ^[7]. Women, particularly in poor rural areas, are also less likely to be employed because of the time spent fulfilling domestic water collection duties. Additionally, WHO reports that women in areas with unreliable water systems suffer higher rates of illness due to poor water sanitation and hygiene? This health burden further limits their ability to work outside the home and participate in community activities.
- **Health and Safety Risks:** The physical strain of carrying water, especially over long distances, can lead to musculoskeletal problems, dehydration, and fatigue. The World Health Organization (2020) estimates that the physical burden of water collection increases the likelihood of chronic health conditions among women. Furthermore, women in water-scarce regions are more vulnerable to violence while traveling long distances to collect water, particularly in conflict-prone areas. Gender-based violence in these settings often remains underreported and inadequately addressed.
- **Reinforcement of Patriarchal Norms:** The management and control of water resources are often dictated by patriarchal structures, which marginalize women's input in water governance. Agarwal (2010) ^[1] notes that despite women's central role in water management, they are frequently excluded from decision-making processes regarding water policies. This exclusion reinforces traditional gender roles and limits women's agency in shaping their environments.
- **Gender-Based Violence and Water Collection:** In many regions, women are vulnerable to gender-based violence (GBV) during water collection, particularly when they must walk long distances or travel through unsafe areas. A UN Women (2021) report found that in conflict zones and rural areas, 30% of women reported experiencing sexual violence while collecting water, often in isolated or poorly protected areas. In South Sudan, 50% of women reported experiencing physical or sexual violence when fetching water, according to a report by the International Rescue Committee (2020). This highlights the intersection of water scarcity with broader issues of gender inequality, where women's safety is compromised during basic activities like water collection.
- **Economic Impacts and Women's Livelihoods:** The time spent on water collection has direct economic consequences for women's livelihoods. The hours dedicated to fetching water are hours that could otherwise be spent on income-generating activities, leading to economic disempowerment. World Bank (2020) estimates that the global economic loss due to water scarcity is about \$500 billion per year due to reduced agricultural productivity, especially in rural areas where women are often involved in subsistence farming. A report by Water Aid (2020) ^[5] reveals that 25% of women in Mozambique report that their income-generating activities are severely hindered by the time spent collecting water. Kenya (2019) saw a 50% reduction in the time women could spend in small-scale enterprises when water collection time increased by just 1-2 hours daily, leading to a 15% decrease in household income for women. Furthermore, the burden of unpaid labor in water collection also limits women's participation in the formal workforce. A study in Ethiopia found that 38% of women in rural areas report they would be more likely to engage in paid work if they had access to nearby water sources.
- **Social Implications and Women's Empowerment:** Water scarcity has broader social implications for women, affecting their empowerment and agency in decision-making processes at both the household and community levels. According to Agarwal (2010) ^[1], women in rural communities are often excluded from formal water governance and management processes, despite being responsible for water collection and use. This exclusion reinforces patriarchal structures and limits women's ability to influence decisions regarding water allocation and infrastructure. UN Women (2021) found that in regions where women are actively involved in water management, there is a 30-40% improvement in water quality and access, as well as a greater likelihood of community-level sustainability in water resources. A study by Water Aid (2020) ^[5] in Niger showed that when women participate in water committees, the success rate of water systems is 70% higher compared to those managed only by men. Women's involvement in water management is crucial for fostering sustainable water practices and ensuring equitable access to water resources. This participation also helps shift traditional gender roles and promotes women's empowerment.

Discussion

The findings illustrate a vicious cycle: water scarcity reinforces gender inequality, and gender inequality limits women's ability to participate in water governance or adapt to scarcity. Moreover, development policies often adopt a "gender-neutral" stance, which fails to address these

embedded disparities. The most striking finding is the significant time burden on women, who spend up to 5-6 hours per day collecting water, which severely limits their opportunities for education, economic participation, and personal development. This daily task also contributes to physical health issues like joint pain and fatigue, as well as heightened exposure to waterborne diseases, underscoring the negative impact of water scarcity on women's health. Furthermore, women's role as primary water collectors increases their vulnerability to gender-based violence during long journeys to fetch water, especially in conflict zones or rural areas. The study also highlights the economic disempowerment women face due to the time spent collecting water, which reduces their ability to engage in income-generating activities and contributes to broader household poverty. Moreover, the exclusion of women from water governance is a critical issue, as their lack of participation in decision-making processes results in policies and infrastructure that often fail to address their unique needs. This exclusion not only limits the effectiveness of water management but also perpetuates the cycle of gender inequality. The research also emphasizes the educational barriers girls face due to water collection duties, with many girls in water-scarce regions dropping out of school to assist in fetching water, thus limiting their future opportunities. In conclusion, the study stresses the need for gender-sensitive water management policies that reduce the burdens on women and ensure their involvement in governance, aiming to create more equitable, sustainable outcomes for both women and the broader community.

From a sociological perspective, the crisis is material and symbolic—reflecting and reproducing unequal power relations. Feminist environmental sociology argues that addressing such issues requires not only infrastructure development but also socio-political change.

Conclusion

Water scarcity is a multifaceted issue that cannot be fully understood or addressed without considering gender. Women in water-scarce regions face disproportionate burdens, not just in terms of time and labor, but also in terms of access to opportunities for social and economic mobility. As such, water scarcity is as much a social issue as it is an environmental one.

A gendered approach to water management is essential to alleviate these inequities. This requires not only addressing the physical infrastructure of water systems but also reshaping social norms and structures to ensure women's participation in decision-making and governance. Without such efforts, the cycle of water scarcity and gender inequality will continue to perpetuate poverty and marginalization.

Recommendations.

- **Integrate Women in Water Governance:** Encourage the inclusion of women in local and national water management and decision-making processes to ensure that their needs and experiences are addressed.
- **Invest in Infrastructure to Reduce Water Collection Time:** Governments and NGOs should prioritize the construction of local water points and reliable water distribution systems to reduce the time spent collecting water.

- **Promote Gender-Responsive Education Programs:** Ensure that girls in water-scarce regions have equal access to education by addressing water-related barriers to school attendance.
- **Ensure Health and Safety Protections:** Policies must be developed to reduce the health risks associated with water collection, including providing access to safe sanitation and reducing the risk of gender-based violence during water collection.

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