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Women and Sanitation in Rural India: Issues and Policy Insights

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Abstract

This paper explores the evolution of gender-focused development approaches, from Women in Development (WID) to Gender and Development (GAD) and Women for Development (WfD), with a focus on sanitation issues in rural India. It highlights the gendered challenges women face, including menstrual hygiene, safety concerns, and health risks, exacerbated by inadequate infrastructure, cultural taboos, and socio-economic constraints. The paper discusses key government initiatives, such as the Swachh Bharat Mission, and underscores the need for gender-responsive sanitation policies that integrate women's leadership and participation. It emphasizes the importance of gender-sensitive strategies, including participatory designs, gender-disaggregated data, behaviour change campaigns, and menstrual hygiene management. Key gaps in policy and practice are identified, such as the limited meaningful participation of women in decision-making and the lack of sustainability planning. The paper calls for comprehensive, inclusive sanitation policies to address women's unique needs and promote broader community development in general and women's development in particular.

Keywords: Gender And Development, Sanitation Infrastructure, Gender-Sensitive Policies, Behaviour Change, Policy Gaps.

I. Introduction

The Women in Development (WID) approach emerged in the early 1970s, aiming to address gender inequalities in development and recognizing that traditional development paradigms had largely ignored women's contributions **(Boserup, 1970).** Influenced by Boserup's seminal work, which highlighted how modernization often displaced women from traditional economic roles, WID focused on increasing women's productivity through targeted interventions such as improved access to credit, education, and vocational training **(Moser, 1993).** The UN's "Decade for Women" (1975–1985) further institutionalized the inclusion of women's issues within development discourse **(Tinker, 1990).** However, WID soon faced criticism for its limitations. It sought to incorporate women into existing development structures without fundamentally questioning the unequal power dynamics underpinning those structures. This often led to increased burdens on women **(Elson, 1991),** treated women as a homogenous group **(Mohanty, 1988),** and emphasized their productive roles while sidelining their reproductive labour **(Moser, 1993).** These critiques gave rise to the Gender and Development (GAD) framework, which shifted the focus to the socially constructed nature of gender roles and the need to transform gender relations **(Rathgeber, 1990).** Whereas WID emphasized women's inclusion, GAD advocated for structural change and the reimagining of power dynamics in development. Building on these evolutions, the Women for Development perspective emphasizes women's leadership, agency, and active participation in sustainable development processes **(Cornwall, 2016).** It recognizes women as key agents of change. Empirical evidence supports this view: women's leadership in natural resource governance often leads to more sustainable environmental outcomes **(Agarwal, 2010).** Women-led organizations tend to prioritize investments in education, healthcare, and infrastructure, resulting in long-term social benefits **(O'Neil et al. 2016).** In agriculture, women develop climate-resilient practices that blend traditional knowledge with modern technologies, improving productivity while preserving ecological balance, especially when given equal access to resources **(Doss et al. 2018; FAO, 2011).** Women's collective action, through mechanisms such as savings groups and cooperatives, has produced successful models for financial inclusion and poverty alleviation **(Kabeer, 2012).** This approach also highlights the

often-undervalued contributions of women's care work and community organizing **(Folbre, 2018).** The rise of digital technologies has opened new avenues for women entrepreneurs to create locally tailored-solutions to community challenges **(Gurumurthy and Chami, 2017).** However, realizing the full potential of women's contributions requires addressing entrenched structural barriers, including discriminatory laws and institutional gender biases **(UN Women, 2015).**

Over time, the relationship between women and development has undergone a significant transformation, emphasizing how development processes impact women differently than men **(Sen and Grown, 1987).** Earlier development models assumed economic growth would benefit all equally **(Benería and Sen, 1981),** but research revealed that women were often marginalized in these processes **(Boserup, 1970).** The empowerment approach, developed by feminist scholars from the Global South, stressed women's agency and collective mobilization to challenge systemic oppression **(Kabeer, 1994; Batliwala, 2007).** Evidence shows that investing in women delivers substantial returns: with equitable access to resources and decision-making power, economic growth accelerates and health outcomes improve **(World Bank, 2012).** Moreover, women's participation in governance enhances transparency and institutional accountability **(Goetz and Jenkins, 2018).** Contemporary approaches now integrate the concept of intersectionality, acknowledging that gender intersects with other identities such as caste, class, ethnicity, and disability **(Crenshaw, 1991; Collins, 2015).** Despite notable progress, significant challenges persist, including gender-based violence, unequal access to resources, and the burden of unpaid care work **(UN Women, 2019).** Additionally, climate change has underscored the need for gender-responsive and inclusive adaptation strategies **(Denton, 2002).** Modern gender frameworks, while rooted in WID, have expanded to address both practical needs and strategic interests **(Kabeer, 1994),** striving for comprehensive and inclusive solutions. The evolution of gender and development thinking is exemplified in the domain of sanitation. Much like the early WID approach overlooked women's specific needs, traditional sanitation initiatives often failed to account for women's safety, privacy, and cultural considerations **(Sweetman, 2012).** Adopting a Women for Development lens in sanitation planning where women are actively involved results in more sustainable and widely adopted sanitation infrastructure **(O'Reilly, 2010).** When women contribute to the design, implementation, and management of sanitation facilities, usage rates increase significantly **(Ray, 2017).** Just as modern gender theories emphasize intersectionality, effective sanitation programs recognize that women's experiences vary by age, ability, socio-economic status, and cultural background **(Caruso et al. 2017).** Addressing women's sanitation needs not only enhances their well-being but also brings widespread health, education, and economic benefits to communities **(Joshi et al. 2021).**

II. Review and Appraisal of Literature

The review examines various studies conducted by experts and organizations on women's sanitation issues, particularly focusing on the challenges faced by women in rural India, including menstrual hygiene management. This is a harsh reality for rural women, especially girls transitioning from puberty to menopause. They face numerous risks, including safety and security concerns, as well as the need to postpone defecation and urination until daytime, which leads to health issues and diseases. Additionally, threats from men, including adolescent boys and adult men, exacerbate the situation. In response to these challenges, the Government of India (GoI), state governments, and Panchayat Raj Institutions (PRI) have taken significant steps, launching programs like the Swachh Bharat Mission and the Unnath Bharat Abhiyan to address the sanitation and health issues that girls and women face, aiming to provide safer and more comfortable sanitation solutions.

Tilley et al. (2013) argue that sanitation has expanded beyond technical aspects to include social, environmental, economic, and gender considerations. They critique the vague use of gender in sanitation literature and emphasize the need for gender-responsive strategies. The review highlights the importance of understanding social dynamics surrounding intimacy and the lack of gender-segregated data on sanitation. The authors advocate for the development of gender-sensitive policies and technologies that address issues like shame, dignity, safety, and status. They conclude that progress could be made by bridging academic perspectives on the sanitation crisis and improving gender-specific approaches.

Sommer et al. (2013) explore the underexplored connection between sanitation and menstrual hygiene management (MHM) in low-income countries. Their review examines menstrual beliefs, behaviours, and the management of menstruation within existing sanitation systems, focusing on challenges like lack of privacy, space for change, and insufficient water for hygiene. The study highlights the inadequate disposal of menstrual materials, which hampers sanitation system functionality. It calls for improved disposal facilities, better training for sanitation designers, and inclusive systems that address the needs of menstruating girls and women, ensuring they can manage their menstruation with dignity and hygiene.

Caruso et al. (2017) studied women's sanitation insecurity in rural Odisha, India, focusing on concerns related to urination, defecation, and menstruation. Through 69 interviews and eight focus groups, they identified four key domains influencing women's experiences: socio-cultural context, physical environment, social environment, and

personal constraints. Findings revealed that sanitation issues lead to adaptations like suppressing bodily needs, resulting in negative health and social consequences. The study emphasizes that improving women's sanitation requires addressing not only infrastructure but also gendered, sociocultural, and social factors to ensure comfort, safety, privacy, and dignity in sanitation management.

Lee (2017) examines how limited access to sanitation affects women's health, security, and children's vulnerability to waterborne diseases in rural India. Using data from 2004-2011, the study finds that households with women who have regular access to mass media and reliable health information are more likely to own latrines. While women's decision-making power plays a role, access to information is more influential. The study also reveals that media channels impact the rural poor and non-poor differently: radio ownership is more closely linked to latrine access for the rural poor, while television ownership matters more for the non-poor.

Pandya and Shukla (2018) examine the progress of Mahatma Gandhi's vision for a Clean India, particularly since the launch of the Swachh Bharat Mission in 2014. The initiative has engaged citizens, with women playing a crucial role in household sanitation. However, women often bear a disproportionate burden, facing "gender-based sanitation insecurity," especially in the absence of adequate facilities. This insecurity compromises their safety and well-being, leading some to limit food and water intake. The study reviews the sanitation status in selected cities, gender challenges, and the impact of Swachh Bharat on community development, emphasizing women's contributions to sustainability.

Caruso et al. (2018) studied the impact of women's sanitation experiences on mental health in rural Odisha, India, involving 1,347 women across four life stages. The study found that while access to a functional latrine was linked to higher well-being, it did not affect anxiety, depression, or distress. However, sanitation insecurity (SI) experiences were strongly associated with mental health outcomes, including lower well-being, higher anxiety, depression, and distress. The study highlights that addressing women's broader sanitation experiences, beyond just providing toilets, is essential for improving their mental health and well-being.

Singh and Mishra (2020) highlight sanitation as a fundamental right for dignified living, noting that 130 million Indian households lack toilets and over 72% of the rural population practices open defecation. Inadequate sanitation, prevalent even in Delhi, leads to health issues, pollution, and significant security risks, particularly for women. Without proper facilities, women are vulnerable to crimes like rape and sexual assault, especially at night. The paper examines sanitation conditions in clusters of slums in Delhi, using a gender analysis framework to emphasize the disproportionate impact of poor sanitation on women.

Jalali (2021) highlights the overlooked health impacts of poor water, sanitation, and hygiene (WASH) conditions on women, proposing a conceptual framework rooted in feminist perspectives. The framework examines how WASH insecurities limit women's capabilities, identifying eight socio-cultural pathways linked to gendered household relations and societal body norms. Using a critical interpretive synthesis methodology, the study connects WASH-related diseases to gender norms that exacerbate women's vulnerability. Jalali advocates for financial support for sanitary materials, sex-disaggregated data on sanitation access, and an assessment of gendered WASH tasks to improve women's health and quality of life in resource-poor settings.

Caruso et al. (2022) conducted a systematic review and meta-synthesis on water, sanitation, and women's empowerment. They examined 257 studies, analyzing the impact of water and sanitation on empowerment through the domains of agency, resources, and institutional structures. Most research was focused on Asia and Africa, with water being the predominant topic. The review found that while empowerment was often mentioned, it was rarely well-defined. It highlighted a lack of standardized measures and called for a "transformative WASH" approach, emphasizing gender-transformative strategies to address systemic barriers to women's resources and agency.

Hazare and Jain (2023) examine the safety of women in slums when accessing sanitation facilities, focusing on factors like infrastructure, location, timing, and availability of toilets. Many women face sexual abuse or rape while using toilets or due to open defecation. Analyzing data from 6,663 slum residents over 12 years, the study found that violence against women is linked to inadequate lighting, limited access to toilets, and unsafe locations of Public Toilets (PTs) and Common Toilet Complexes (CTCs). The paper highlights the need to address these safety challenges in water and sanitation facilities for women.

Chaudhuri (2023) discusses the sanitation challenges in developing countries like India, particularly the widespread practice of Open Defecation (OD) due to a lack of toilets and social norms. In Odisha, where Individual Household Latrines (IHHL) coverage is below 90%, the issue is more severe, with the state ranking low in achieving Open Defecation Free (ODF) status. The paper explores the impact of sanitation insecurity on women, highlighting the health risks, including pneumonia and diarrhea, and the psychosocial stress caused by inadequate facilities. Using Social

Norms Theory, the study offers policy recommendations to improve sanitation and uphold women's dignity as a human right.

Doe (2023) examines the environmental, social, and health challenges caused by inadequate sanitation, particularly for women in India. Poor sanitation, compounded by gendered norms and menstrual practices, disproportionately impacts women, creating a distinct health and social divide. Young women face stigma, mobility constraints, and limited knowledge about menstruation, exacerbating psychological, social, and health challenges. The article emphasizes that while menstruation education is essential, it must be paired with interventions addressing societal stigma and silence. The study advocates for multilayered, culturally sensitive approaches that prioritize young women's well-being, alongside improving health, education, and employment outcomes.

MacArthur et al. (2023) discuss the emerging use of gender-transformative approaches in WASH programming, noting that these approaches are still in the early stages. They document the development of a conceptual framework within the Australian Government's Water for Women Fund, created through workshops. This framework categorizes initiatives as insensitive, sensitive, responsive, or transformative, driven by motivators like welfare, efficiency, and empowerment. It offers practical guidance for integrating gender equality in WASH programs and policies, with applications in community mobilization, governance, and enterprise development. The authors propose a working definition for gender-transformative WASH, emphasizing its potential to enhance both WASH outcomes and gender equality.

Doma et al. (2023) examine the role of women's agency in managing sanitation in Tiruchirappalli, India, using secondary thematic analysis of 11 cognitive interviews. The study finds that while women had the freedom to access sanitation facilities and were confident in household decision-making, their involvement in community-level sanitation was limited. Barriers such as domestic responsibilities and self-doubt hindered leadership participation. The authors emphasize the importance of building on women's existing confidence and peer trust, suggesting that supporting female-led initiatives and creating inclusive spaces for dialogue can enhance women's engagement in sanitation governance.

WHO and UNICEF (2023) report that women and girls bear the brunt of water collection in households without on-premises water access, with women over 15 being responsible in 7 out of 10 such households. Girls under 15 are twice as likely as boys to perform this task, often at the cost of education and safety. The report highlights gender disparities in WASH access, noting that over half a billion people rely on shared sanitation, compromising privacy and safety. Inadequate WASH services also hinder menstrual health and increase exposure to disease, particularly for women and girls in vulnerable situations.

Miller et al. (2024) studied the impact of access to private sanitation on psychosocial development among adolescents in India and Ethiopia. They found that access to private sanitation, such as flush toilets or pit latrines, significantly boosts self-efficacy and self-esteem in adolescent girls, but not boys. The effect was stronger for girls in communities with higher overall access to private sanitation, suggesting relative access is more influential than absolute access. Improved peer relations were linked to private sanitation for younger girls (ages 12–15), but not older ones (ages 19–22). The benefits were not mediated by physical health or parent relationships.

Agarwal et al. (2024) aimed to evaluate menstrual hygiene practices in Aandhi village, Rajasthan, and assess the effectiveness of educational interventions in improving menstrual health. A survey was conducted with 3290 males, 2994 females, and 242 senior citizens, using structured questionnaires to collect data. Educational interventions were introduced to promote hygienic menstrual practices. The results revealed a significant gap in menstrual hygiene, with 75% of participants disposing of menstrual products improperly. However, following the interventions, there was a notable improvement in both hygiene practices and awareness. The findings highlight the urgent need for enhanced menstrual hygiene education, proper waste disposal systems, and greater access to sustainable menstrual products in rural India.

Behera et al. (2024) examined the relationship between household sanitation and menstrual hygiene management in Odisha, India. The study, surveying 694 rural women aged 15–45, found that 68.4% of households had improved sanitation, while 30% still relied on unimproved facilities, contributing to open defecation. About 40.6% of participants used cloth for menstrual hygiene. Women with improved sanitation were more likely to use household toilets for changing menstrual materials and less likely to use sleeping areas. The study emphasizes the importance of sanitation for menstrual health and calls for improved WASH infrastructure in rural and tribal communities in Odisha.

Caruso et al. (2024) examine the role of women in water, sanitation, and hygiene (WASH) interventions in low- and middle-income countries. They reviewed 133 studies on the effectiveness of WASH interventions for diarrhoeal diseases and acute respiratory infections, finding women were the most engaged group in research (68.9%) and interventions (40.8%). However, reporting on time burdens related to these activities was minimal. Most interventions

were classified as either gender-unequal (36.7%) or gender-unaware (63.3%), reflecting exploitative engagement. The study calls for WASH research and interventions to evolve to promote gender equality, rather than simply instrumentalizing women's roles.

Ranjithkumar (2024) discusses the socio-economic factors affecting women sanitation workers in Tamil Nadu, India. These workers, often from marginalized communities, face health risks due to poor working conditions, low wages, job insecurity, and lack of healthcare access. They are exposed to toxic waste, respiratory illnesses, and skin diseases, and often face stigma and discrimination in healthcare settings. The study advocates for improving wages, employment protection, and social security, alongside better occupational health training and sanitation infrastructure. It calls for targeted interventions to enhance healthcare access, reduce out-of-pocket expenses, and combat discrimination, ensuring better health outcomes and social justice for these workers.

Ramani et al. (2024) discuss the gaps in WASH interventions that often fail to empower women, despite targeting them as key actors in project outcomes. A review by Caruso et al. (2022) found that only 10% of the 162 gender-sensitive WASH indicators explicitly measured empowerment. To address this, Ramani et al. developed the Women's Empowerment metric for WASH (WE-WASH), a set of indicators designed to assess both women's and men's agency in the WASH sector. The study, conducted in Malawi and Nepal, outlines the development of the WE-WASH indicators and presents key findings from the Malawi data.

III. Women and Sanitation

Sanitation refers to the infrastructure and services necessary for the safe disposal of human waste, along with the maintenance of hygienic conditions through waste collection and wastewater management **(WHO, 2019).** Beyond mere convenience, access to adequate sanitation is a basic human right that plays a critical role in ensuring public health, upholding human dignity, and advancing sustainable development **(UN, 2022).** However, this issue disproportionately impacts women and girls, particularly in rural regions of developing countries like India where they face distinct and often overlooked challenges arising from inadequate sanitation facilities **(Caruso et al. 2018).** The gendered dimensions of sanitation stem from women's unique biological needs, prevailing sociocultural norms, and significant safety concerns, all of which deeply influence how they interact with and access sanitation services. These challenges are particularly acute in rural India, where entrenched patriarchal structures, rigid traditional gender roles, economic hardship, and inadequate infrastructure intersect to exacerbate the issue **(Nallari, 2015).** Although the Indian government's flagship initiative, the Swachh Bharat Mission (SBM), has made notable strides in expanding toilet access across the country, gender-specific needs often remain marginalized in policy implementation. As a result, significant gaps persist in addressing the sanitation needs of women holistically and inclusively **(O'Reilly et al. 2017).** This article focuses on the sanitation challenges faced by women in rural India, exploring the intricate interplay between gender, sanitation, health, and social development. It begins by outlining the multidimensional significance of sanitation for women and then delves into the specific barriers encountered by rural Indian women. The analysis proceeds to evaluate current policies and programs, highlights key implementation shortfalls, proposes strategic interventions, and concludes with policy recommendations aimed at more effectively meeting women's sanitation needs.

IV. The Importance of Sanitation for Women

Menstrual hygiene management is a critical aspect of sanitation for women. In rural India, nearly 70% of women are unable to afford commercially available sanitary products, forcing them to rely on unhygienic alternatives such as old cloth, ash, sand, or leaves **(Sharma et al. 2020).** Managing menstruation effectively requires not only access to sanitary materials but also private spaces for changing, clean water and soap for washing, and safe disposal mechanisms facilities that are often absent in rural settings **(Hennegan et al. 2019).** Poor menstrual hygiene practices can lead to reproductive tract infections and significantly contribute to school absenteeism among adolescent girls **(Sommer et al. 2016).** Safety and dignity represent another crucial dimension of women's sanitation needs. In the absence of household toilets, approximately 355 million women and girls in rural India are forced to practice open defecation, exposing them to risks of sexual harassment, assault, and even attacks by animals **(Jadhav et al. 2016).** Many women delay relieving themselves until nighttime, which leads to health issues such as urinary tract infections caused by prolonged urine retention and intentional reduction in water intake as a coping mechanism **(Sahoo et al. 2015).** These safety-related constraints severely limit women's mobility, autonomy, and quality of life, thereby perpetuating gender inequalities **(Kulkarni et al. 2017).** The health impacts of inadequate sanitation go beyond menstrual hygiene. Rural Indian women suffer disproportionately from urinary tract infections (UTIs), bacterial vaginosis, and other reproductive tract infections directly linked to poor sanitation conditions **(Baker et al. 2016).** Pregnant women without access to adequate sanitation are at greater risk of experiencing complications such as preterm births and low birth weight in infants **(Padhi et al. 2015).** Moreover, women are often the primary caregivers for family members who fall ill due to sanitation-related diseases, thereby increasing their workload and exposure to harmful pathogens **(Routray et al. 2017).**

Girls' educational outcomes are also significantly affected by the lack of proper sanitation facilities. Studies show that around 23% of adolescent girls in rural India drop out of school upon reaching puberty, with inadequate toilet access frequently cited as a major reason **(Adukia, 2017).** Schools that lack gender-segregated toilets or appropriate menstrual hygiene management provisions create inhospitable environments for girls, contributing to higher absenteeism and school dropout rates **(Birdthistle et al. 2011).** This disruption to education reinforces cycles of gender inequality and limits future economic opportunities for women **(Miiro et al. 2018).** Sanitation conditions also deeply affect women's social and psychological well-being. The stigma and shame associated with open defecation and menstruation can lead to psychological distress, lowered self-esteem, and social isolation **(Sahoo et al. 2015).** Many women report feelings of embarrassment, anxiety, and a loss of dignity when forced to manage menstruation or defecate in public spaces without adequate facilities **(Caruso et al. 2017).** The constant stress of navigating daily sanitation challenges places a significant psychological burden on women one that remains largely overlooked in public health responses **(Hulland et al. 2015).**

V. Issues and Problems in Sanitation in Rural India

Inadequate access to functional toilets and sanitation infrastructure continues to pose a significant challenge in rural India. Although the Swachh Bharat Mission has led to notable progress, recent assessments indicate that nearly 20% of rural households still lack access to usable toilets **(Accountability India, 2023).** Even in areas where toilets have been constructed, problems such as poor-quality construction, unreliable water supply, and cultural resistance often lead to their disuse or abandonment **(Coffey et al. 2017).** Where community sanitation facilities are available, they frequently fail to meet women's needs for privacy, safety, and accessibility **(Khanna and Das, 2016).** Cultural taboos surrounding menstruation and sanitation further exacerbate these infrastructural shortcomings. In rural India, menstruation is still highly stigmatized, with restrictive practices barring women from participating in religious rituals, preparing food, or accessing water sources during their menstrual cycles **(Thakur et al. 2019).** These deeply ingrained cultural norms contribute to the silence around menstrual health, hinder intergenerational knowledge sharing, and create resistance to adopting improved sanitation practices **(Crawford et al. 2014).** Similarly, social taboos related to human waste and bodily functions complicate open discussions and educational outreach about sanitation **(O'Reilly and Louis, 2014).** A lack of awareness about hygiene practices presents yet another major barrier. Studies reveal that even where toilet facilities exist, fewer than 35% of rural residents practice handwashing with soap after defecation **(Diarrhoea and Pneumonia Working Group, 2018).** Widespread knowledge deficits persist regarding the link between inadequate sanitation and disease transmission, particularly in less educated communities **(Gautam et al. 2017).** Despite their central role in caregiving and household hygiene management, many women face limited access to hygiene education, owing to restricted mobility and lower educational attainment **(Vyas et al. 2019).**

In rural India, inadequate water supply and inefficient waste disposal systems continue to undermine sanitation efforts. Nearly 43% of rural households lack access to piped water, making it difficult to maintain toilets and hygiene standards **(Ministry of Jal Shakti, 2023).** Water scarcity often forces households to make difficult choices between drinking, cooking, and sanitation needs, with toilet use frequently deprioritized **(Vedachalam et al. 2017).** Additionally, faecal sludge management remains largely underdeveloped in rural regions, where improper disposal practices pose environmental risks and perpetuate cycles of disease transmission **(Berendes et al. 2017).** Sanitation infrastructure often fails to reflect gender-sensitive design, overlooking women's specific needs. Most public and community toilets lack critical features such as adequate lighting, secure locks, menstrual hygiene management facilities, and child-friendly layouts **(Winter et al. 2018).** Moreover, the placement of sanitation facilities is rarely guided by women's input, resulting in accessibility challenges, especially for pregnant women, the elderly, and those with disabilities **(Joshi et al. 2019).** Standardized toilet designs frequently ignore the heightened need for privacy and safety among women compared to men **(Caruso et al. 2018).** Economic constraints further limit women's access to sanitation. The cost of constructing a household toilet ranging from INR 12,000 to 20,000 poses a significant financial challenge for many rural families, even with the availability of government subsidies **(Mane et al. 2019).** For rural women, commercial sanitary products remain prohibitively expensive, with monthly spending on disposable pads consuming up to 5% of household income **(Garg et al. 2020).** Compounding the issue, women often lack control over household finances, restricting their ability to allocate resources toward sanitation-related needs **(Kulkarni et al. 2017).** Caste and social hierarchies further compound disparities in sanitation access. Dalit women, in particular, face layered challenges, as sanitation coverage remains markedly lower in settlements predominantly occupied by scheduled castes and tribes **(Coffey et al. 2017).** Despite legal prohibitions, manual scavenging continues in some areas, with lower-caste women disproportionately burdened by its associated health risks and social stigma **(Srivastava and Singh, 2019).** The intersection of gender and caste produces some of the most vulnerable populations, whose sanitation needs are often overlooked in mainstream policy discussions **(Joshi et al. 2011).**

VI. Invisible Problems of Women's Sanitation in Rural India

Women encounter unique sanitation challenges shaped by both biological factors and entrenched socio-cultural norms. These challenges frequently render sanitation a source of stress, vulnerability, and indignity for women and girls. Issues

such as gender-based violence during access to sanitation facilities and the difficulties of managing hygiene during menstruation underscore the critical need for a gender-sensitive approach to sanitation. Women's sanitation vulnerabilities emerge at the intersection of poor infrastructure and restrictive societal expectations. The lack of basic amenities like toilets especially in rural and low-income urban areas makes daily sanitation practices burdensome, humiliating, and sometimes perilous. Inadequate sanitation not only exacerbates environmental degradation but also poses serious health risks due to increased exposure to pathogens and unsafe open-defecation environments. Women are particularly susceptible to dangers such as snake bites, animal attacks, and sexual violence in these settings **(Wendland et al. 2009; Darapuri, 2012).** Although India's legal and policy frameworks have gradually recognized women's unique sanitation needs, significant gaps remain in addressing them comprehensively. The shortage of toilets in both public and private spaces compels many women, particularly adolescents and young women to avoid defecating during daylight hours for fear of being seen. In response, many adopt coping strategies such as reducing food and fluid intake, particularly fibrous foods like pulses and leafy greens **(Bapat and Agarwal, 2003).** While these strategies may offer temporary relief, they can lead to long-term health consequences, including bowel disorders like constipation, piles, inflammation, and irritable bowel syndrome **(Tearfund, 2008).** Some women suppress the urge to urinate or defecate until after dark, leading to chronic health problems such as urinary tract infections and gastric disorders **(Burra et al. 2003; Pardeshi, 2009).** Sanitation needs during menstruation, pregnancy, and postpartum recovery often go unmet, especially in contexts where open defecation is the only available option.

Safety concerns further compound these issues. In increasingly congested urban and peri-urban areas, women face hazards like falling into drains, traffic accidents, attacks by stray animals, and even fatalities due to collapsing or poorly maintained community toilets **(Koppikar, 2017; Pardeshi, 2009).** Sanitation is inherently gendered, shaped by biological needs such as menstruation and pregnancy and reinforced by social norms that place the responsibility for managing these needs on women **(Burt et al. 2016).** Menstrual hygiene management (MHM), in particular, remains shrouded in stigma, secrecy, and shame. Women and girls are expected to handle menstruation discreetly, often resorting to cloth absorbents that are reused and dried indoors to avoid exposure. In the absence of household water access, they may be forced to wash clothes in ponds or dispose of them by burying or burning them in open fields **(WSSCC and FANSA, 2016).** Cultural taboos around menstruation further limit women's freedom and participation in daily life. During menstruation, girls and women may be prohibited from entering kitchens, sleeping on beds, consuming specific foods, or touching religious objects **(Vatsalya, 2014).** To avoid defecation during the day, many become what UNICEF refers to as "prisoners of daylight" **(UNICEF, 2010),** walking long distances in search of seclusion exposing themselves to harassment, assault, and theft. These issues are also prevalent in school settings. A lack of functional and gender-sensitive toilets affects both female students and teachers. Poor infrastructure contributes to absenteeism and dropout rates, but cultural anxieties also play a role. Families often fear that reaching puberty increases girls' exposure to premarital relationships, prompting early withdrawal from school **(Joshi et al. 2015; Oster and Thornton, 2011).**

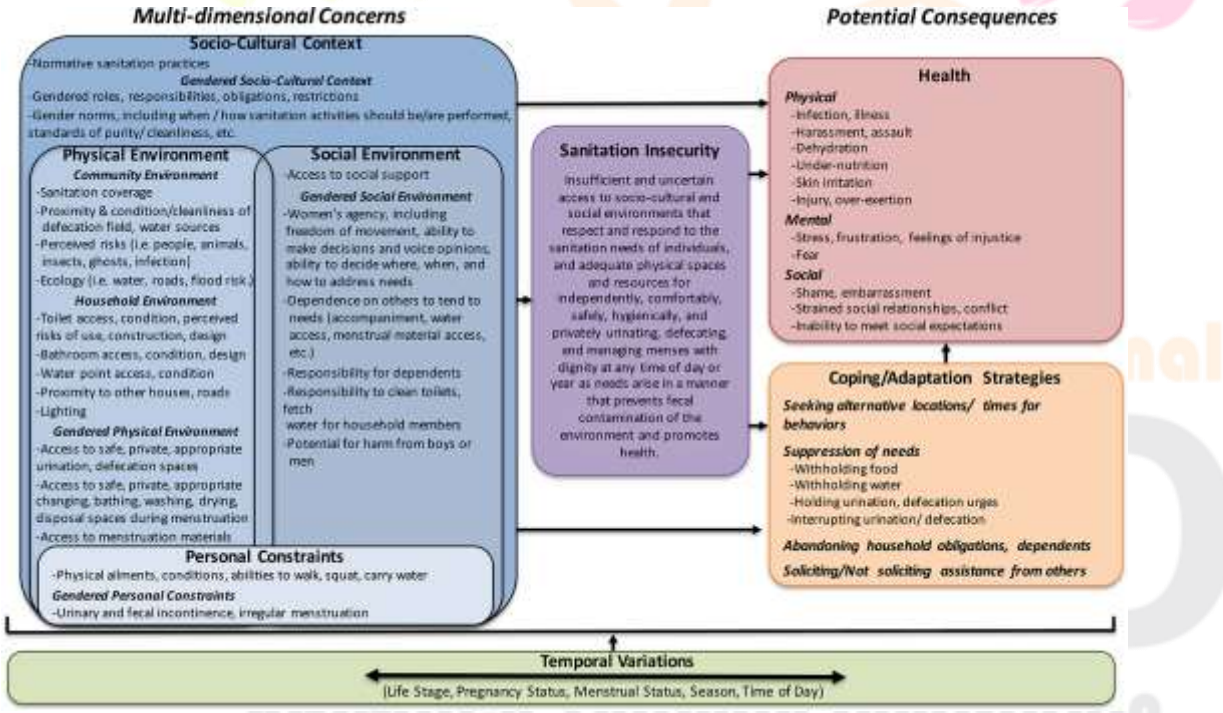
In workplaces and public areas, the absence of accessible sanitation facilities forces women to either suppress their biological needs or depend on nearby households. This becomes particularly challenging during menstruation, as the inability to change absorbents can lead to discomfort, missed workdays, and income loss **(Rajaraman et al. 2011).** In a progressive move, the Government of India introduced dedicated Menstrual Hygiene Management (MHM) Guidelines in 2015. These guidelines focus on two core components: promoting scientific awareness about menstruation for safe, healthy, and eco-friendly practices, and ensuring access to vital infrastructure such as separate toilets, clean water, soap, affordable sanitary products, and safe disposal options. The National Rural Health Mission, under the Ministry of Health and Family Welfare, has also incorporated MHM into its agenda, distributing low-cost sanitary napkins to adolescent girls aged 10–19 years, priced at ₹6 for a packet of six. Despite these efforts, substantial challenges persist. Addressing women's sanitation needs demands a multidimensional approach one that extends beyond infrastructure to confront deep-rooted cultural taboos, entrenched gender norms, and pressing safety concerns. Only through such a comprehensive and inclusive strategy can sanitation be truly recognized and upheld as a fundamental human right for all, regardless of gender.

VII. Women and Sanitation Insecurity in Rural India

Sanitation insecurity disproportionately impacts women, undermining their health, safety, and dignity. The lack of access to clean, private toilet facilities places women at heightened risk of urinary tract infections, challenges related to menstrual hygiene, and gender-based violence, particularly in rural regions and urban slums **(Sommer et al. 2015; Caruso et al. 2017).** The fear of harassment often forces women to postpone urination or defecation, which further aggravates health conditions **(Jadhav et al. 2016).** Moreover, sanitation policies frequently fail to incorporate gender-specific considerations, resulting in systemic exclusion **(Joshi et al. 2011).** Bridging these gaps calls for inclusive planning, gender-responsive infrastructure, and active community involvement to ensure equitable access to sanitation for all.

Inadequate or absent sanitation infrastructure greatly heightens exposure to faecal pathogens, which are responsible for various infectious diseases, including diarrhoea, soil-transmitted helminth infections, trachoma, and schistosomiasis **(Prüss-Ustün et al. 2008; Guerrant et al. 2013).** O'Reilly characterizes toilet insecurity as a situation where "safe, usable toilets are not available" **(O'Reilly, 2016).** While the safety and functionality of sanitation facilities are undeniably critical, emerging evidence indicates that women may continue to experience sanitation insecurity even when functional toilets are physically present. Drawing from research on water and food insecurity, sanitation insecurity is increasingly conceptualized as a multidimensional issue extending beyond physical access to include personal experiences, perceptions of safety and dignity, and social or cultural expectations. These subjective dimensions, deeply embedded within broader sociocultural contexts, significantly influence how women access, utilize, and experience sanitation. Sanitation insecurity reflects a complex interplay of factors that not only affect health outcomes but also shape coping strategies and adaptive behaviours. These factors are often influenced by temporal variables such as time of day, season, or stage of life, which can intensify or alter sanitation-related challenges and determine the responses individuals adopt. In light of these insights, we propose a comprehensive definition of sanitation insecurity that captures the diverse and intersecting challenges faced by women, along with the wider contextual influences affecting them: Sanitation insecurity refers to insufficient and uncertain access to physical, social, and sociocultural environments that adequately respect and accommodate an individual's sanitation needs including the ability to urinate, defecate, and manage menstruation independently, comfortably, safely, hygienically, and with dignity, at any time of day or year, in a manner that prevents environmental faecal contamination and supports overall health. This definition encompasses several critical dimensions: the gendered and sociocultural context (including autonomy, respect, and freedom from gender-based constraints); the physical environment (adequacy of infrastructure, comfort, hygiene, and safety); the social environment (provisions for privacy and dignity); individual biological needs (covering urination, defecation, and menstrual hygiene); and temporal variability (ensuring consistent access regardless of time or season). At its core, this definition emphasizes the profound health implications of sanitation insecurity and underscores the necessity of preventing faecal contamination in the environment. **(Figure 1)**

Figure 1- Multi-dimensional Concerns and Potential Consequences



Source: Adopted from Caruso et al. (2017)

VIII. Existing Policies, Programs and Initiatives for Rural India

Swachh Bharat Abhiyan (Gramin), launched in 2014, remains India's most ambitious sanitation initiative to date. Its objectives included achieving universal sanitation coverage and eliminating open defecation by 2019 through the construction of toilets, the promotion of behaviour change, and the establishment of waste management systems **(Ministry of Drinking Water and Sanitation, 2018).** By 2019, the mission reported constructing over 100 million household toilets and declared all Indian states Open Defecation Free (ODF) **(Department of Drinking Water and Sanitation, 2022).** However, independent assessments reveal a disconnect between infrastructure development and actual usage, particularly among women **(Research Institute for Compassionate Economics [RICE], 2019).** Although gender considerations were incorporated into the SBM guidelines, the on-ground implementation frequently prioritized numerical achievements over qualitative aspects of gender-sensitive sanitation **(O'Reilly et al. 2017).** To complement sanitation efforts, the Jal Jeevan Mission (JJM), initiated in 2019, seeks to provide functional household

tap water connections to all rural households by 2024 **(Ministry of Jal Shakti, 2022**). Recognizing the interdependence of water and sanitation, the mission is particularly beneficial for women, who are typically responsible for water collection. The JJM mandates 50% female representation in Village Water and Sanitation Committees. However, evidence suggests that women's participation is often tokenistic rather than transformative **(Mehta, 2022).** Despite the mission's goal of integrating with SBM to deliver comprehensive WASH (Water, Sanitation, Health and Hygiene) solutions, challenges in coordination and on-ground convergence remain significant **(Javadekar and Kumar, 2023).**

The Menstrual Hygiene Scheme, introduced by the Ministry of Health and Family Welfare in 2011, focuses on improving menstrual health awareness and access to sanitary products for adolescent girls **(Ministry of Health and Family Welfare, 2019).** The scheme distributes subsidized sanitary napkins through frontline health workers and school networks. However, evaluations reveal gaps in outreach to remote areas, erratic supply chains, and limited emphasis on sustainable menstrual products **(Garg et al. 2020).** A notable shortfall is the scheme's focus on product distribution without adequately addressing disposal systems, access to private spaces for change, or comprehensive menstrual education **(Muralidharan et al. 2018).** Several state-level programs have emerged to address regional sanitation and menstrual hygiene challenges. Tamil Nadu's Menstrual Hygiene Management Policy (2018) exemplifies a holistic framework, integrating education, access to products, and disposal mechanisms **(Tamil Nadu State Rural Livelihoods Mission, 2018).** Maharashtra's "Asmita Yojana" offers subsidized sanitary napkins through self-help groups, combining income generation with menstrual hygiene promotion **(Government of Maharashtra, 2018).** Additionally, NGO-driven campaigns such as WaterAid's "Menstrual Hygiene Matters" and WASH United's "Menstrual Hygiene Day" have played a vital role in raising awareness and reducing stigma in rural areas **(Singh et al. 2021).** Despite these concerted efforts, critical evaluations underscore a recurring gap between policy design and actual impact. While infrastructure statistics are impressive, behavioural adoption lags, with research indicating that toilet use remains inconsistent, even in households with fully functional toilets **(Coffey et al. 2017).** Women's involvement in planning and execution processes often remains limited, as male-dominated institutional structures hinder meaningful participation **(O'Reilly and Louis, 2014).** Moreover, the predominant focus on household-level interventions neglects the need for accessible community and institutional sanitation facilities, which are essential to meeting women's sanitation needs beyond the domestic sphere **(Joshi et al. 2019).**

IX. Towards Gender-Responsive Sanitation Policy for Rural India

Incorporating a gender perspective into sanitation programs requires strong institutional mechanisms at both the policy and implementation stages. A key step is the creation of gender budget cells within relevant ministries, as recommended by the Ministry of Women and Child Development, to ensure equitable resource allocation for women's sanitation needs **(Manjula and Rajasekhar, 2022).** Additionally, mandating gender impact assessments before approving sanitation schemes along with clear indicators of gender responsiveness in design and execution would further embed gender sensitivity in planning processes **(Mehta, 2022).** Strengthening institutional capacity is equally essential, through training programs for sanitation officials in gender analysis and inclusive planning **(Koonan, 2019).** A national menstrual hygiene policy, currently absent, is critical. Such a policy should establish standards for menstrual education, product access, and sustainable waste management, particularly in rural areas **(Garg et al. 2020).** It should also ensure the inclusion of menstrual hygiene management (MHM) facilities in public buildings and community sanitation complexes, supported by dedicated budget allocations **(Muralidharan et al. 2018).** Effective implementation of MHM initiatives will require collaboration across multiple ministries, including health, education, rural development, and water resources **(Kaur et al. 2018).** To accelerate women-led sanitation solutions, financial and policy incentives are essential. Offering differentiated subsidies for household toilets with female-friendly designs would encourage the development of gender-sensitive infrastructure **(Routray et al. 2017).** Additionally, providing credit linkages to women's self-help groups involved in sanitation-related microenterprises can enhance their economic participation **(Patnaik et al. 2019).** Performance-based incentives for gram panchayats to meet gender-responsive sanitation benchmarks would further prioritize women's needs in local governance **(Koonan, 2019).** Strengthening monitoring and evaluation frameworks by institutionalizing gender-disaggregated data collection across all sanitation programs is critical. This should track not only access, but also usage patterns, satisfaction levels, and health outcomes **(Manjula and Rajasekhar, 2022).** Independent social audits involving women's groups can help ensure accountability and provide valuable qualitative insights **(Mehta, 2022),** while mobile-based feedback platforms can amplify women's voices in monitoring processes **(Javadekar and Kumar, 2023).**

Behaviour change communication (BCC) campaigns should be institutionalized with gender-sensitive messaging to challenge cultural taboos and promote inclusive sanitation practices. These campaigns must engage men actively, reframing menstrual hygiene as a collective, family-level concern **(Routray et al. 2017).** Integrating age-appropriate, gender-sensitive hygiene education into school curricula, starting at the primary level, can normalize discussions around sanitation and bodily autonomy **(UNICEF, 2019).** Additionally, mass media campaigns featuring female role models from rural communities can be powerful tools to break taboos and raise awareness **(Crawford et al. 2014).** The Government of India's Swachh Bharat Mission (SBM), launched in 2014, marked a significant milestone in improving public sanitation. By 2020, SBM had led to the construction of over 100 million toilets nationwide. During

its first five years, open defecation rates dropped from 60% to 19%, and the number of households with toilets doubled. SBM's focus on Information, Education, and Communication (IEC) strategies through SMS alerts, phone calls, and community outreach successfully mobilized rural communities. A recent study in Nature Scientific Reports found that every 10% increase in SBM-driven toilet construction was associated with a reduction of 0.9 infant deaths per 1,000 live births, leading to an estimated 67,235 fewer infant deaths annually, given SBM's widespread coverage across Indian districts **(Chakrabarti et al. 2024).**

X. Gaps in Policy and Practice

The lack of gender-disaggregated data poses a significant barrier to effective policy development in sanitation. Current monitoring systems primarily track household-level toilet coverage and usage without distinguishing between male and female experiences **(Manjula and Rajasekhar, 2022).** This information gap obscures gender-specific challenges, such as menstrual hygiene needs, safety risks, and accessibility issues faced by women **(Panda et al. 2020).** Without the systematic collection of gender-sensitive indicators, policies fail to adequately address the unique sanitation needs of women **(Routray et al. 2017).** Superficial participation of women in WASH (Water, Sanitation, Health and Hygiene) programs undermines the effectiveness of gender-inclusive approaches. Despite policy requirements for female representation in village water and sanitation committees, research shows that women's involvement often remains symbolic rather than meaningful **(Mehta, 2022).** Cultural norms restricting women's public participation, combined with time constraints due to domestic duties and limited decision-making power in these committees, reduce their influence over sanitation planning and implementation **(Sharma et al. 2020).** Even when women are present, their perspectives may be sidelined in male-dominated decision-making processes **(Kulkarni et al. 2017).**

Another key issue is the focus on infrastructure without a corresponding emphasis on behaviour change. Government initiatives have prioritized metrics such as toilet construction over sustained usage and hygiene practices **(RICE, 2019).** Without addressing deeply rooted cultural preferences for open defecation among certain communities, simply building toilets proves insufficient **(Coffey et al. 2017).** Behaviour change communication strategies often fail to engage with the gendered dimensions of sanitation practices or adapt to local sociocultural contexts **(O'Reilly and Louis, 2014).** Moreover, menstrual hygiene policies reflect a broader neglect of women's specific sanitation needs. Although menstrual hygiene management is recognized as a vital component of female sanitation, comprehensive policies that address product accessibility, awareness, and disposal infrastructure remain scarce **(Garg et al. 2020).** School-based menstrual hygiene programs serve only a portion of adolescent girls, leaving out-of-school and married adolescents largely underserved **(Muralidharan et al. 2018).** The absence of clear guidelines for menstrual waste management exacerbates environmental challenges, particularly in rural areas with limited waste processing infrastructure **(Kaur et al. 2018).** Finally, the lack of proper maintenance and long-term sustainability planning jeopardizes the durability of sanitation improvements. Many toilet construction programs fail to include provisions for the repair, maintenance, or renovation of facilities **(Orgill et al. 2019).** The focus on meeting initial coverage targets, without allocating resources for ongoing maintenance, often leads to infrastructure deterioration and eventual abandonment **(Coffey et al. 2017).** Women are disproportionately affected by these dysfunctional facilities, as they have fewer socially acceptable alternatives to formal toilets compared to men **(Khanna and Das, 2016).**

XI. Strategies and Solutions

Gender-sensitive sanitation planning requires comprehensive gender analysis during the initial stages of project design. Successful strategies integrate women's preferences regarding toilet location, design, and usage patterns through participatory assessment methods **(Winter et al. 2018).** Features such as proper lighting, secure locks, menstrual hygiene management facilities, and child-friendly designs significantly enhance women's comfort and encourage higher usage rates **(Caruso et al. 2018).** In Odisha, pilot programs have demonstrated that gender-responsive designs lead to a 47% increase in women's toilet usage compared to standard models. Women's involvement in local governance structures, particularly in Panchayati Raj institutions, is a crucial strategy for ensuring gender-inclusive sanitation. Research shows that gram panchayats led by women allocate significantly more resources to water and sanitation infrastructure than those led by men **(Chattopadhyay and Duflo, 2004).** Training programs for elected female representatives on sanitation issues, budget procedures, and monitoring systems further empower women to advocate for their needs effectively **(Koonan, 2019).** In Kerala and Tamil Nadu, self-help groups linked to local governance have played an essential role in mobilizing community resources for sanitation improvements **(Panda et al. 2020).** Thorough hygiene education in schools and through community outreach is vital for bridging knowledge gaps and challenging cultural taboos. UNICEF's WASH in Schools program shows that gender-sensitive, age-appropriate hygiene education can significantly improve practices among adolescent girls **(UNICEF, 2019).** Female health volunteers, street theatre, and women's group discussions have successfully broken the silence surrounding menstruation in rural areas **(Crawford et al. 2014).** Engaging men as allies through targeted awareness campaigns also helps dismantle restrictive gender norms associated with sanitation and hygiene. The development of affordable, eco-friendly sanitary products, along with local production units, can address economic barriers while creating livelihood opportunities. Initiatives such as Jayashree Industries, which produces low-cost sanitary napkins through

self-help groups, have expanded product accessibility while generating income for rural women **(Patnaik et al. 2019).** Reusable products like menstrual cups and cloth pads provide environmentally sustainable alternatives with lower long-term costs, though their adoption requires extensive education and initial support **(van Eijk et al. 2019).** Government subsidies further enhance the viability and reach of these enterprises **(Garg et al. 2020).**

Special attention is needed for school and workplace sanitation facilities to support women's participation in education and the workforce. The Ministry of Education's guidelines mandating separate, functional toilets for girls have been shown to improve female enrollment and retention rates **(Adukia, 2017).** In workplaces, especially in rural settings such as MGNREGA work sites and agricultural fields, the enforcement of sanitation standards under the Occupational Safety, Health, and Working Conditions Code is crucial **(Medhi, 2021).** Mobile sanitation units designed for women in agricultural fields have shown positive results in pilot programs in Maharashtra and Karnataka **(Joshi et al. 2019).** Strengthening the capacity of frontline workers, such as ASHA and Anganwadi workers, is essential for the local implementation of sanitation programs. These predominantly female cadres, when adequately trained and resourced, can effectively bridge the gap between government initiatives and community needs **(Singh, 2018).** Training modules focused on gender-sensitive sanitation, menstrual hygiene counselling, and behaviour change communication equip these workers to address women's specific concerns **(Vyas et al. 2019).** Performance-based incentives for sanitation promotion increase the prioritization of these issues in their extensive responsibilities **(Panda et al. 2020).** Community-led total sanitation (CLTS) approaches with a specific gender focus have proven effective in achieving lasting behaviour change. Modified CLTS methods, which include women's safety mapping, separate discussion groups for women, and female facilitators, show higher success rates in creating open defecation-free communities **(Kar and Chambers, 2008).** Integrating menstrual hygiene concerns into traditional CLTS triggers expands the focus from faecal-oral contamination to encompass women's comprehensive sanitation needs **(Roose et al. 2015).** Follow-up support through women's groups helps sustain behaviour change beyond initial triggering events **(O'Reilly and Louis, 2014).** Partnering with NGOs and self-help groups can leverage existing women's networks and local knowledge for more effective implementation. Organizations like Gramalaya and Sulabh International have pioneered women-centred sanitation approaches, which can be scaled through government partnerships **(Patnaik et al. 2019).** Self-help groups under the National Rural Livelihoods Mission provide an underutilized platform for sanitation financing, behavior change communication, and monitoring **(Panda et al. 2020).** Formalized partnerships, through memoranda of understanding, ensure that efforts by government and civil society organizations are complementary rather than redundant **(Singh et al. 2021).**

XII. Conclusion

Adopting gender-sensitive approaches in sanitation development is essential for enhancing women's agency and fostering inclusive, sustainable outcomes. Addressing women's unique sanitation needs requires strategies that go beyond infrastructure to encompass safety, privacy, menstrual hygiene management, and access to sanitary products. These measures are crucial for improving women's health, dignity, and well-being, which in turn has a positive impact on broader community health, education, and economic progress. To tackle the sanitation challenges faced by rural women, policies must be comprehensive, integrating gender-responsive designs, behaviour change, and women's active participation in decision-making. Empowering women through better sanitation access can help reduce gender inequalities, improve educational outcomes, and contribute to long-term socio-economic development. Furthermore, policies should address cultural barriers, ensuring that marginalized groups, including Dalit women, have equitable access to sanitation services. Strengthening local governance, promoting female leadership, and collaborating with self-help groups are critical for effective implementation. Despite progress in sanitation initiatives, gaps remain in addressing women's specific needs, particularly related to menstrual hygiene and infrastructure usage. A multi-faceted, inclusive approach that prioritizes gender-disaggregated data, behaviour change, and sustainability planning is necessary to ensure lasting, equitable sanitation outcomes, promoting dignity and public health for women in rural India.

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