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A Commentary on the Achievements and Obstacles of India's Sanitation Initiative Under the "Swachh Bharat Mission"

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ABSTRACT

Universal accessibility to sanitation services continues to be quite the way off in India. Despite the Clean India Mission (which is also known as the "Swachh Bharat Mission (Gramin)" for rural India) claiming that the standard of sanitation in rural regions has improved from 39% to 100% of households between 2014 and 2019, public defecation persists as ubiquitous throughout India. In addition to the current issues which have to be fixed for India's Swachh Bharat Mission to achieve its objectives, the following article highlights the achievements and difficulties of the Swachh Bharat Mission (Gramin). The search terms "Clean India," "Swachh Bharat," "Sanitation," "Open defecation," "Environmental health," and "India" were utilized in various combinations to query international database servers, primarily Google Scholar, Scopus, and Science Direct. Furthermore, a manual search was conducted for relevant articles and reports on the websites of prominent national agencies, newspapers, and the Government of India, as well as significant United Nations (UN) institutions. Numerous initiatives were implemented in the five years prior to this one (2014–2019) to enhance toilet coverage across India through the establishment of multiple grassroots movements and awareness campaigns. By the conclusion of the initial phase of the Swachh Bharat Mission (Gramin) on October 2, 2019, over one hundred million toilets had been erected, and all Indian villages were officially designated as free from open defecation. Nevertheless, 52.1% of individuals in rural regions still engage in outdoor defecation. Poorly constructed toilet infrastructure, a lack of piped water supply, and prevalent misconceptions regarding toilet usage remain significant impediments to India's sanitation initiative. To promote the utilization of constructed toilets, achieve universal sanitation access, and fulfil the Sustainable Development Goals, prioritization of behavioral changes related to sanitation and improvements to restroom facilities is imperative.

Keywords: Environmental health, Open defecation, Sanitation in India, SDGs

INTRODUCTION

According to the 2018 Global Nutrition Report, India has the highest prevalence of stunting in the world, with 37.9% of children under five suffering from it[1]. Additionally, the most recent National Family Health Survey IV (2015–2016) found that 38.4% of children under five had stunting[2]. Diarrhea is the third most common cause of death for children under five in India, accounting for 13% of all child deaths in this age group[3,4]. It is estimated that diarrheal deaths alone account for 300,000 child deaths per year in India, with unsafe water, inadequate sanitation, and poor hygiene practices closely linked to both conditions. The evidence suggests that there are three main ways that stunting and inadequate sanitation are related: environmental enteric dysfunction (EED)[5], diarrheal diseases[6], nematode infections[7].

The first study demonstrates that growth retardation has been linked to persistent abnormalities in the intestinal mucosa, which ultimately led to EED in Gambian children [8, 9]. Stunting and insufficient sanitation are thought to be primarily triggered by this[5]. The surroundings may become polluted by faeces due to the second informal pathway, whereby households fail to get rid of their waste properly. when treatment is not received, bacteria found in human faeces can enter the faecal-oral channel of transmission and trigger diarrhoea[10]. Chronic malnutrition or stunting are the outcomes of recurrent episodes of

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diarrhoea. Due to the third informal pathway, helminth infections (such as Ascaris Lumbricoides, Hookworm, and TrichurisTrichiura) spread through the soil are linked to stunting[6,11].

These medical conditions result in dietary malabsorption, which impedes the growth of children[12]. The third casual transmit is substantiated by evidence that the use of restrooms reduces the incidence of helminth infections, which are soil-transmitted illnesses[13,14]. Consequently, proper sanitation has not yet been implemented by 25% of the global population, despite its critical importance for child development, the prevention of the transmission of infectious diseases, human dignity, health, and welfare, as well as equality for women and men[15–24].

The advancement of public health in any nation is impeded by poor sanitation facilities and open defecation, which are directly associated with the growth of children, which results in early death[25]. According to recently released studies, open defecation is one of the primary factors influencing childhood malnutrition in India[26, 27]. A small number of studies have, however, suggested that heredity may be the cause of Indian children's stunted growth[28]. However, a significant number of studies that refute this claim assert that open defecation and hazardous environmental conditions are significantly linked to stunted growth in children.

Furthermore, environmental barriers like hazardous restrooms and physical distance, as well as social and sexual violence fears, contribute to the psychosocial stress that poor sanitation causes in women and girls. According to UNICEF, India loses $189 billion (or 7.9% of GDP) because of lost productivity, lost tourism, and medical expenses brought on by poor sanitation[29]. There are still significant differences in coverage and toilet uptake among regions, even though open defecation has drastically decreased in rural India and that the Swachh Bharat Mission has improved toilet coverage. Additionally, several scholars have voiced doubts regarding the government's publicly available statistics and the process by which open defecation-free (ODF) status is confirmed[30,31]. One research, for instance, found that out of eight villages that had sanitation facilities in 2018, only one was declared as ODF[32].

This article analyses the accomplishments of the Swachh Bharat Mission and discusses the present gaps and problems that must be addressed to ensure its success in India.

About the Swachh Bharat Mission in India:

Numerous countries, particularly in Southeast Asia and sub-Saharan Africa, have undertaken initiatives to enhance latrine ownership rates. India, as a member of the Global South, has undergone significant transformation over the past five years through a centrally coordinated government initiative known as the Clean India Mission (Swachh Bharat Mission, SBM). Launched in 2014 by Prime Minister Narendra Modi, the SBM represents the world's largest sanitation program. Its objective is to attain universal access to sanitation and to ensure that villages are clean, sanitized, and open defecation-free (ODF). Since its inception, official statistics indicate that nearly 100 million toilets have been constructed by offering financial incentives to eligible households, involving local governments (Panchayat Raj Institutions or PRIs) and communities in toilet construction, conducting mass awareness campaigns to promote behavioural change, and monitoring progress to meet established targets.

In 2015, India's national sanitation coverage was reported at 39%, with rural areas contributing to 60% of open defecation-free (ODF) status. Currently, India has achieved a significant milestone, as recent Swachh Bharat Mission (SBM) data indicates nearly 100% sanitation coverage across the total population. Furthermore, sample studies demonstrate substantial progress in rural sanitation coverage at 93.3%, although the latrine ownership rate remains comparatively lower at 71.3%. The fundamental objective of sanitation in the interest of public health is to prevent the entry of harmful pathogens into the human body and to mitigate faecal-oral transmission.

SBM, therefore, served as an instrumental impediment to the cessation of this practice by promoting the use of latrines and constructing them. Research conducted around the world has shown that widespread sanitation practices are significantly associated with the enhancement of the health and nutritional status of children, thereby reducing catastrophic household health-care expenditures[29,39,40]. As a result, India must expedite this nationwide sanitation initiative by fortifying the connections between health and sanitation in order to maximize the potential benefits of SBM.

Sanitation Technology within the Swachh Bharat Mission:

The effective management of sanitation in households primarily relies on the adoption of toilet

technology and the availability of space for on-site containment systems. Numerous safe sanitation technologies exist, such as twin leach pits, eco-scan systems, bio-toilets, and septic tanks with soak pits. However, the Swachh Bharat Mission advocates for the construction of twin leach pit latrines. These latrines utilize low-cost sanitation technology, are straightforward to construct, and feature a simpler on-site treatment process, capable of efficiently managing excreta when properly built.

However, misconception about, this technology has limited acceptance due to poor construction of toilet substructures and incorrect architecture modification, that reduces toilet efficacy[41]. Many rural households have built structure for excreta containment that fails to treat human waste from toilets, rather it just holds the excreta. This is because, people belief that these latrines (twin leach pit) are meant for poor households and fears that the pits will fill up in a rapid way. Family occasionally constructs wider or deeper pits that have flout design principle, without referring the suggestive distance recommended by government from the water sources[41,42.] Across country, water table variation and terrain difference (hilly, rocky, coastal, and dessert) exit, that calls for adapting different technologies for toilet construction; failure to which can lead environmental contamination[41]. There is need for site specific solutions to ensure safe sanitation for all. In addition, single leach pit latrines, septic tanks and containment structures, once filled, require skilled services for emptying and transportation of the fecal sludge to the treatment facilities for its subsequent disposal or reuse[43]. The absence of such facilities mainly in rural areas can lead to in human practice of manual scavenging resulting caste based stigma and oppression among marginalized sections of society[44].

Challenges and Emphasis on Behavioural Modification:

Toilet infrastructures are essential; however, they cannot solely serve as prerequisites for halting faecal-oral pathogen transmission. In rural regions, inadequate water supply is a significant concern, with only 42.5% of households having access to water for toilet use, thereby exacerbating toilet non-usage rates. Additional challenges, including improper faecal sludge management, unsuitable toilet technologies, and insufficient human resources, hinder the attainment of sanitation coverage in these areas. Critical factors such as the adoption of appropriate and sustainable technologies, comprehensive participation in sanitation programs, social norms, individual attitudes towards latrine usage, sanitation-related behaviours, awareness initiatives, and various social movements are necessary to enhance toilet utilization and maintain Open Defecation Free (ODF) status, ultimately benefiting public health.

Sanitation related behaviours require top priority in this context. Recent national surveys indicate that 95.7% of females and 94.7% of males used toilet regularly in rural areas among those households had access to toilet[46]. Another study conducted in four north Indian states suggest that toilet usage in rural households is increasing to an extent of 56%[38]. In addition, research in rural India and field experience suggest that people are slowly developing the habit of using toilet. Data suggest that open defecation has decreased by 12% from 2015 to 2019, which means that nearly half of the rural population still defecates in the open[24]. Open defection is traditional behaviour in rural India and people perceive it to be healthier, cleaner, and sometimes "religiously acceptable"[34]. This issue of open defecation is of greater concern and worrisome because government studies indicate, the proportion of children below 15 years of old is practicing open defecation more frequently than other age groups[45]. Nearly, 57% of children younger than 10 years in cities and 15 years in rural areas are defecating in the open. This puts the child health at risk, leading to various diseases that are linked to unsafe sanitary practices. The recent study suggests that unsafe stool disposal is one of the major causative factors accountable for stunting and under five mortality in India[47]. The prevalence of diarrhoea and stunting is clearly found to be higher in those households, where unsafe stool disposal and open defecation was practiced[47,48]. Therefore, investment alone cannot be held responsible to bring improvement of the sanitation program in India. O'Reilly and Louiss in their study in rural villages of Himachal Pradesh and West Bengal suggested three factors (*i.e.*, Toilet Tripod) (1) favourable political environment, (2) strong political will, and (3) person to person contact (proximate) social pressure can be considered as successful adaption of the sanitation program in India[49].

Hand hygiene is another crucial and cost-effective public health intervention, equally as significant as toilet use. An individual may utilize a toilet, but if they fail to wash their hands after defecation or handling child

excreta, they remain at risk of transmitting pathogens to children during feeding, cooking, and eating. Handwashing facilities, including water, soap, and designated washing spaces, are often unavailable, leading to inconsistent handwashing practices with soap and water in many rural areas of India. To achieve favourable health outcomes, well-designed strategies that address sanitation and hygiene behaviours are essential to ensure the availability of water and soap during toilet use.

Dialogue and Future Discussions:

Although India has achieved significant advancements in sanitation coverage, certain individuals, households, and communities from disadvantaged segments of society—such as female-headed households, landless individuals, migrant labourers, and persons with disabilities—remain without access to toilets or find existing facilities inaccessible. It is imperative to assist these underserved populations from both human rights and public health standpoints, as these marginalized groups already lack basic services and face numerous health challenges. Educational institutions, childcare centers, hospitals, and other government facilities necessitate further enhancement of sanitation practices. The collection of disaggregated data on sanitation coverage in public facilities and among disadvantaged populations requires innovative approaches to address the needs of overlooked groups, which will be crucial in this context.

To achieve Sustainable Development Goal 6 (SDG) in India, which aims to "ensure access to water and sanitation for all" by 2030, several factors must be addressed. In a country characterized by vast diversity, culture, and a population where 60% resides in rural areas, mere access to toilets does not guarantee hygienic and safe sanitation practices. For example, insights from India's inaugural sanitation initiative, the "Central Rural Sanitation Programme," launched in 1986, indicated that the construction of toilets alone did not lead to their usage. This program concentrated on building household toilets and promoting pour-flush toilets.

However, this program lacks the focus on behaviour change toward toilet use that led failure of the program[34,46]. Further, the succeeding Total Sanitation Campaign (TSC) which launched in 1999, aimed at making India ODF by 2017. Unfortunately, this campaign blamed with poor results mainly due to inadequacy in political leadership, the misuse of subsidies, lack of confidence to measure success, poor monitoring mechanisms, and supply led top down approach[54]. Under TSC, nearly 34.8 million toilets in below poverty line households and 64.3 million individual household toilets were constructed. Despite, such efforts and investments, a review of TSC mentioned, nearly 72.63% of household in rural areas still defecates openly even though they have access to toilets[55]. Considering this fact, the SBM (G) has learnt how to resolve, some of these issues, by capitalizing political support, to pay subsidies directly to households through e banking, strengthening monitoring system through technological platform and broadcasting the success of the program. Moreover, one of the main aims of the SBM (G) is to change behaviour of the people through information, education, and communication campaign and to provide individual toilet facilities in all households to achieve the goal of ODF by October 2, 2019 – to honour the 150th birthday of Mahatma Gandhi.

The central government is also focusing how to change the mindset of the people to adopt improved sanitation and to stop open defecation. It also emphasizes on the adverse heath outcome that comes as a result of unsafe sanitary practices. The Swachhta Status Report of GoI states, in rural areas, only 45.3% households reported access to sanitary toilets that ensures hygienic practices of sanitation and safe stool disposal. Empirical evidence also highlights the benefits of having improved sanitation facilities and safe disposal of stool that significantly reduce the under 5 mortality rate and childhood stunting[47].

The rural populace must be informed about the detrimental health implications of unsafe sanitation practices. Films such as "Toilet: Ek Prem Katha" should be screened and promoted in rural India, featuring prominent national actors. This initiative can enhance public awareness regarding the importance of toilet usage and the adoption of hygienic household sanitation practices. Research indicates that educators and local community leaders serve as catalysts in disseminating awareness and fostering behavioral changes. Educational efforts should be directed towards village leaders and key informants to promote awareness of healthy sanitation.

This paper emphasizes the sanitation coverage and Open Defecation Free (ODF) status over the past five years, from 2014 to 2019, during the initial phase of the Swachh Bharat Mission (Gramin). While most studies have examined various aspects of sanitation programming, including community participation, toilet construction,

technological options, environmental factors, subsidy provision, and the impacts of sanitation programs, this paper aims to identify the challenges and successes of centrally led government sanitation initiatives. A key focus of this study is to promote behavioural change among individuals to enhance overall cleanliness in villages and neighbourhoods, thereby allowing children to grow up free from stunting and malnutrition. This objective is not unattainable for India, as evidenced by Mawlynnong village in Meghalaya, which has been recognized as the cleanest village in Asia.

Conclusion:

The first phase of SBM (G) has got over (2014-2019) and the government report suggest that all villages and districts across the country had declared themselves ODF[67] Currently, SBM (G) phase II (2020-2025) has been implemented by the Government of India with a total estimated cost of Rs. 1,40,881 crores with main aim to transform all villages from ODF to ODF plus. The key objective of SBM (G) phase II is to sustain the investment made in SBM (G) phase I on ODF status of villages and to improve the cleanliness level in rural areas through effective management of liquid and solid waste, making villages ODF plus. The ODF plus village is defined as a village that must sustains the ODF status, ensure solid, and liquid waste management and visually clean[67]. We must watch and see how SBM (G) phase II will be impacting millions of people in rural villages by maintaining ODF status and ensure proper solid and liquid waste management activities by 2025. In addition, the reasons for non usage of toilet must be addressed, so that health and well being of people in India can continue to be improved. Further, an independent credible robust monitoring tool must be put in place to accurately measure the sanitation progress of the country under phase II SBM (G).

India has made significant strides towards achieving SDG 6 by enhancing nationwide toilet access under SBM (G). Concurrently, it is imperative for India to evaluate its accomplishments in the context of environmental safety and the prevention of faecal-oral disease transmission, particularly to safeguard children from malnutrition and premature mortality. Addressing the complexities of SBM identified in this study will illuminate pathways for India and other nations to fulfil sanitation objectives, thereby achieving universal sanitation and meeting the SDGs.

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