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DISCUSSION PAPER

ALIGNING INDIA'S SANITATION POLICIES WITH SUSTAINABLE DEVELOPMENT GOALS (SDGs)

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Summary

In 2015, the United Nations (UN) had set interconnected Sustainable Development Goal (SDG) with a broad and ambitious vision for the next 15 years. SDG 6 calls upon all Nations to **"ensure availability and sustainable management of water and sanitation for all".** It places water and sanitation at the core of sustainable development, cutting across sectors and regions. There are strong synergies between the targets of Goal 6 and 16 other goals of the Sustainable Development Agenda. The interventions to meet the targets of SDG 6 extend far beyond achieving SDG 6 because it also contributes to other SDGs, and specifically impacts eight SDGs, which include poverty eradication (SDG 1), ending hunger by improved nutrition (SDG 2), ensuring healthy lives and promoting well-being (SDG 3), education (SDG 4), gender equality (SDG 5), inclusive cities (SDG 11), life below water (SDG 14), and terrestrial ecosystem (SDG 15).

This Discussion Paper dwells on the policies and programmes of the sanitation subsector and explores current Government policies in India for the linkages with sanitation component of SDG 6 as well as their implications for other SDGs. This paper includes both the 'rural' and 'urban' sanitation sectors in India. The recommendations emerging from this paper are for a more balanced approach to current and proposed urban and rural sanitation sector policies to ensure that in addition to SDG 6, the policies contribute positively to the achievement of other SDGs as well. Some of the important recommendations are:

- The sectors and policies of water, sanitation, health and hygiene should be well harmonised and managed holistically.
- Sanitation interventions and initiatives require sustained efforts from Governments, businesses, Civil Society Organizations (CSOs), etc., to ensure safe sanitation for all, and not just as a programme with toilet construction targets.
- It is important to measure quality of life (QoL) outcomes of Water, Sanitation and Hygiene (WASH) initiatives including reduction in poverty and better health and education systems.
- Behavioural change is a key component towards achieving safe sanitation. The National, State and City level programmes need to be supplemented and synergised with awareness generation and behaviour change campaigns with key stakeholders (like administrators, citizens, schools, media, etc.) for achieving intended outcomes.
- Dysfunctional toilets lead to slippage from open-defecation free (ODF) status, the reasons of which should be assessed, and appropriate actions should be taken.
- Efforts to develop human resources for sanitation are required throughout the sanitation chain. Apart from training institutes, Non-Governmental Organisations (NGOs) and CSOs must play a key role in developing human resources.
- Sewage management needs to be improved through the use of modern technology and decentralised treatment/management plants in different locations within Urban Local Bodies (ULBs).
- In order to manage WASH facilities created under *Swachh Bharat* Mission (SBM), it is imperative to ensure buy-in from the community. The upkeep and operations & management (O&M) of these infrastructures must be based on innovative ideas.
- The synergy formed among the various stakeholders including State, District and City Governments, academia, private sector, and CSOs under SBM should be strengthened for achieving better WASH outcomes.
- Aligning of SDG 6 with other SDGs and localization of SDGs by providing a framework at the States and local governments will support the achievement of the SDGs through bottom-up actions.

1. INTRODUCTION

Sanitation includes safe disposal of human waste, waste water management, solid waste management, water supply, control of vector-borne diseases, domestic and personal hygiene. According to the Joint Monitoring Programme (JMP) Report 2017 (WHO-UNICEF Report), 6.5 billion people (89% of the global population) have access to at least a basic service to obtain drinking water, 4.6 billion (71% of the global population) have access to a safe source of drinking water; and 844 million (7.5%) have no access to even basic drinking-water service. Of the 5.0 billion (68%) that have access to at least basic sanitation service, nearly 2 billion (39%) have access to safe sanitation services. By 2015, 154 countries had achieved at least a basic level of sanitation. Although about 2 billion people globally, have gained access to improved sanitation services since 1990 (JMP 2014, JMP 2017) and substantial progress has been made under the Millennium Development Goals (MDGs), those that remain behind need to be provided such access by 2030, if the agenda of the SDGs are to be fulfilled.

Under the MDGs, the progress made in the sanitation sector in India remained inadequate (56% population with access to improved sanitation) despite the significant progress in the provision of drinking water (91% population with access to improved sources of drinking water), as of 2015. Regardless of the decrease in population practicing OD from 564 million (JMP 2015) to 477 million (JMP 2017), India still has the largest number of people practicing OD. These large numbers are in spite of India's huge budget for sanitation, which is the highest compared to the other developing nations.

Achieving the goals of sanitation in India would contribute immensely to globally achieving the 2030 Agenda on Sanitation under the SDG 6. The SDGs are a unique opportunity to evolve a system of global accountability and commitment. SDG 6 deals with all aspects of water availability, access and use, and calls upon all nations to "Ensure availability and sustainable management of water and sanitation for all". It places water and sanitation at the core of sustainable development agenda, cutting across sectors and regions. Achieving SDG 6 would require concerted efforts across multiple domains and sectors because access to safe water and improved sanitation are vital links through which various SDGs and other development objectives are connected, such as SDG 1 (Poverty Eradication), SDG 2 (Ending Hunger by Improved Nutrition), SDG 3 (Ensuring Healthy Lives and Promoting Well-being), SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 11 (Inclusive Cities), SDG 14 (life below water), SDG 15 (Terrestrial Ecosystem). Improved water and sanitation services will lead to improved health, which, in turn, will increase school attendance, especially amongst adolescent girls—and inclusive and quality education for all will contribute to reducing poverty. For achieving long-lasting sustainable development outcomes, it is crucial to understand the synergistic relations between the different SDGs as well as possible trade-offs between the targets of SDG 6 and those of the other SDGs.

This Discussion Paper analyses the current alignment of the Government of India's policies, programmes, and schemes in rural and urban sanitation with the sanitation component of SDG 6 and their implications on other SDGs. The objective of this document is to explore and establish these connections to help understand the shortcomings, contradictions, and lack of alignment between the sanitation component of SDG 6 with other SDGs, and help make conscious choices, prioritisations, and optimisations in implementing the programmes at the field level. To that extent, the paper takes forward the general linkages between the various SDGs in the economic, social, and environmental dimensions by adding the country context of India.

2. RURAL SANITATION IN INDIA

Open defecation has been identified as a serious threat to the health of a community where it is practiced. It has been a deep-rooted age-old socially inherited behaviour in rural India. The provision of adequate sanitation coverage in rural India was a major challenge due to its heterogeneous socio-economic conditions. Figure 1 gives an overview of the progress of sanitation in rural India.

In order to bring attention and support for clean water and sanitation worldwide, the United Nations had designated the period 1981–1990 as the 'International Drinking Water Supply and Sanitation Decade'. This led towards the water supply and sanitation gaining increased prominence in the sixth Five-Year plan (1980-85), which had a total outlay of INR 97,500 crores in the public

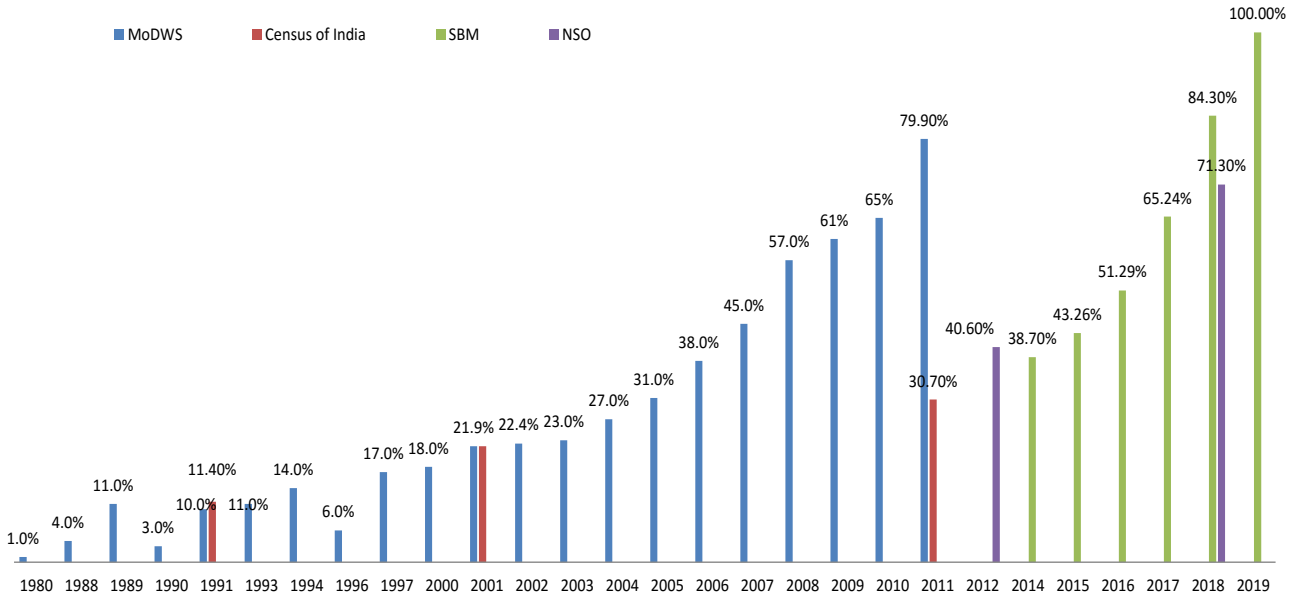

Figure 1: Progress in coverage of sanitation in rural India

Source: (1980 – 2008) Nurturing Rural Sanitation Revolution in India, AFRICASAN 2008, Durban, MDWS available on https://mdws.gov.in/sites/default/files/Durbanpaper_0.pdf (Accessed on 15th May 2018); (1980-2010) A Decade of the Total Sanitation Campaign: Rapid Assessment of Processes and Outcomes, Volume 1: Main Report, Water and Sanitation Program (WSP), 2011; Census of India (1991), Census of India (2011), (2012 and 2018) NSSO: NSS 65th and 76th round, (2014-2019) http://sbm.gov.in/

The Planning Commission of India earlier used to guide investment through the Five-Year Plans in various sectors by allocating funding as per the priorities of the government. During the first Five-Year Plan (1951-55), a national water supply programme was launched in 1954. In the succeeding Five-Year Plans, larger allocations were made for water supply and sanitation, but rural sanitation had a negligible funding share. This lack of funding reflected the poor progress in the sanitation sector with only 1% of the rural population having access to sanitation by 1980.

sector out of which INR 3922.02 crores were allotted for water supply and sanitation. At the Central government level, the responsibility for rural sanitation was shifted during this period from the Central Public Health and Environmental Engineering Organisation (CPHEEO) to the Rural Development Department.

In order to improve the sanitation conditions in the country, Central Rural Sanitation Programme (CRSP), the first nationwide sanitation programme was launched in 1986 by the Ministry of Rural Development, Government

of India. Several sanitation programmes have been launched since then. The CRSP focused on construction of household toilets, and promoted the pour-flush toilets by providing hardware subsidies in order to generate demand. However, issues such as behaviour change to end OD and to increase the use of toilets were not prioritised. This resulted in an investment of more than INR 660 crores with more than 9 million toilets constructed across the country. But as per the data, this had very little impact on rural sanitation. The Census of 2001 found that only 21.9% of rural households had access to toilets showcasing an improvement of around 1% per annum from 1981.

The key learning from the CRSP programme was that the construction of toilets does not necessarily result in toilet usage. There was need for a different approach to achieve the target of providing sanitation for all and attaining open-defecation free (ODF) status. In 1999, the Government of India launched the Total Sanitation Campaign (TSC) in order to achieve coverage of all households with water and sanitation facilities and to promote good hygiene behaviour and practices to achieve overall health improvement of the rural population. TSC followed a demand-driven, community-led approach towards total sanitation. The campaign also focused on Information, Education and Communication (IEC) in order to mobilise and motivate communities towards safe sanitation. TSC was further strengthened by the launch of the very innovative award *Nirmal Gram Puraskar* (NGP) in October 2003. The NGP was an award-based incentive scheme given to Panchayati Raj Institutions (PRIs) for fully sanitised and ODF Gram Panchayats, Blocks, Districts, and States. A cash prize was given to the local governments that had been able to achieve 100% sanitation (ODF + tackled issues of solid and liquid waste management [SLWM]). The first award was given in 2005 as a component of TSC. There was an increase of approximately 8.31 million rural households without access to toilets from that of the 2001 Census. The actual use of sanitation facilities and sustained behaviour change were crucial elements towards achieving sanitation for all. Sustainability of the interventions was also a key issue, with several reports highlighting that many of the NGP awardees (declared ODF) were unable to effectively sustain their ODF status. The issue of being able to reach out to everyone, especially the poor and marginalised was also a massive challenge.

These issues warranted a change in strategy and in 2012, the *Nirmal Bharat Abhiyan* (NBA) (Clean India Campaign), which was adapted from the TSC (1999-2012), was launched. The objective of the NBA was to achieve sustainable behaviour change along with the provision of sanitary facilities in all communities in a phased, saturation mode with *'Nirmal Grams'* or clean villages as outcomes[1]. NBA adopted the community-based approach in rural India. The provision of incentives for individual household latrine (IHHL) units were widened to cover all Above the Poverty Line (APL) households constituted by Scheduled Castes (SCs)/Scheduled Tribes (ST), small and marginal farmers, landless labourers, physically challenged or women-headed households as well as for all Below the Poverty Line (BPL) households. Financial incentive for the construction of toilets was raised for all eligible beneficiaries to INR 4600 (with additional provision up to a ceiling of INR 5400) was made available under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)[2]. However, the slow progress for sanitation coverage during this period highlighted the fact that a strong policy framework to ensure sanitation for all does not necessarily translate into improved coverage in the entire country.

The fiscal incentives in NGP for achieving sanitation outcomes had generated a good response from the PRIs. The Ministry of Drinking Water and Sanitation (MDWS) had reported that 79.9% of rural habitation had access to sanitation by 2011 showcasing the significant progress that the programme had made. However, the Census of India had reported that only 30.70% of rural India has access to sanitation facilities and 67.3% still practiced OD. A report by Accountability Initiative[3]stated that this stark difference of reported data is primarily due to the creation of different databases on sanitation coverage. The report further stated that the project objectives of TSC were determined on the basis of Annual Implementation Plans (AIPs). However, these AIPs ended up being projected as targets for construction of toilet facilities and their

[1] https://mdws.gov.in/sites/default/files/swajal_nirmal_bharat_enewsletter_0_0.pdf

[2] pib.nic.in/newsite/mberel.aspx?relid=103876

[3] Kapur, A and Ibrahim, S (2013), From Outlays to Outcomes: Understanding the Status of Rural Sanitation Data, Accountability Initiative, New Delhi. A document published for The State of Sanitation Project, Arghyam.

achievement were measured on the basis of these project objectives, thereby leading to the creation of different databases causing the sanitation data discrepancy.

into lesser number of households without toilets. In fact, majority of the States and UTs (Assam, Bihar, Chhattisgarh, Goa, Jammu & Kashmir, Jharkhand, Karnataka, Madhya

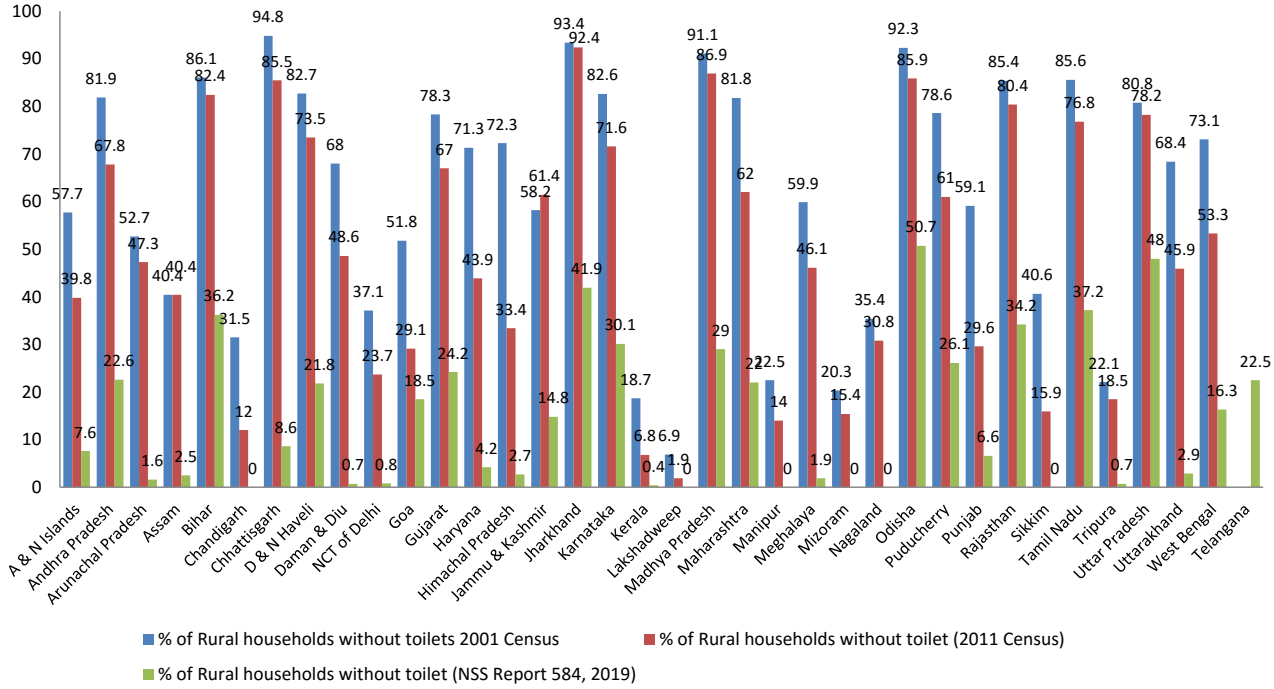

Figure 2: Percentage of rural households without toilets in 2019[4] compared to Census 2011 and 2001

As per the 2001 Census, the States of Chhattisgarh, Jharkhand, Madhya Pradesh, and Odisha had more than 90% of rural households without toilets. By the next census in 2011, there was an improvement of varying degrees in terms of percentage in all the States and Union Territories (UTs). The 76th round of National Sample Survey (NSS) highlighted that two UTs (Chandigarh and Lakshadweep) and four States (Manipur, Mizoram, Nagaland, and Sikkim) have achieved 100% rural sanitation coverage. The NSS also showed that States and UTs of Daman & Diu, NCT of Delhi, Kerala, and Tripura have less than 1% of rural households without a toilet. However, the States of Bihar (36.2%), Jharkhand (41.9%), Karnataka (30.1%), Odisha (50.7%), Rajasthan (34.2%), Tamil Nadu (37.2%), and Uttar Pradesh (48%) still have a significant percentage of rural households without access to toilets.

Additionally, as depicted in the Figures 2 and 3, it should be noted that a reduction in percentage of rural households without toilets does not necessarily translate

Pradesh, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh) actually reported a rise in rural households without toilets during the period of 2001 to 2011. This could be mainly due to the rise in population not being in tandem with the increase in toilet access.

The slow progress of sanitation coverage from 2011 to 2014 led to the situation where even though India had achieved the target of drinking water access under the MDGs, the target for sanitation remained unmet.

In order to hasten the efforts to realise the goal of universal sanitation coverage and increase the focus on sanitation, the SBM was launched on October 2, 2014. SBM received unprecedented attention from political leadership, media agencies, and celebrities. It took the form of a people's movement (*Jan Andolan*) because of strong political will and concerted efforts by all stakeholders including CSOs and NGOs. Though SBM was intended to be distinct from the previous programmes with more thrust on behaviour change aspects and sustainability of interventions, eventually it too has had to depend on a target-oriented

[4] NSS report no.584: Drinking Water, Sanitation, Hygiene and Housing condition in India, NSS 76th round (July –December 2018)

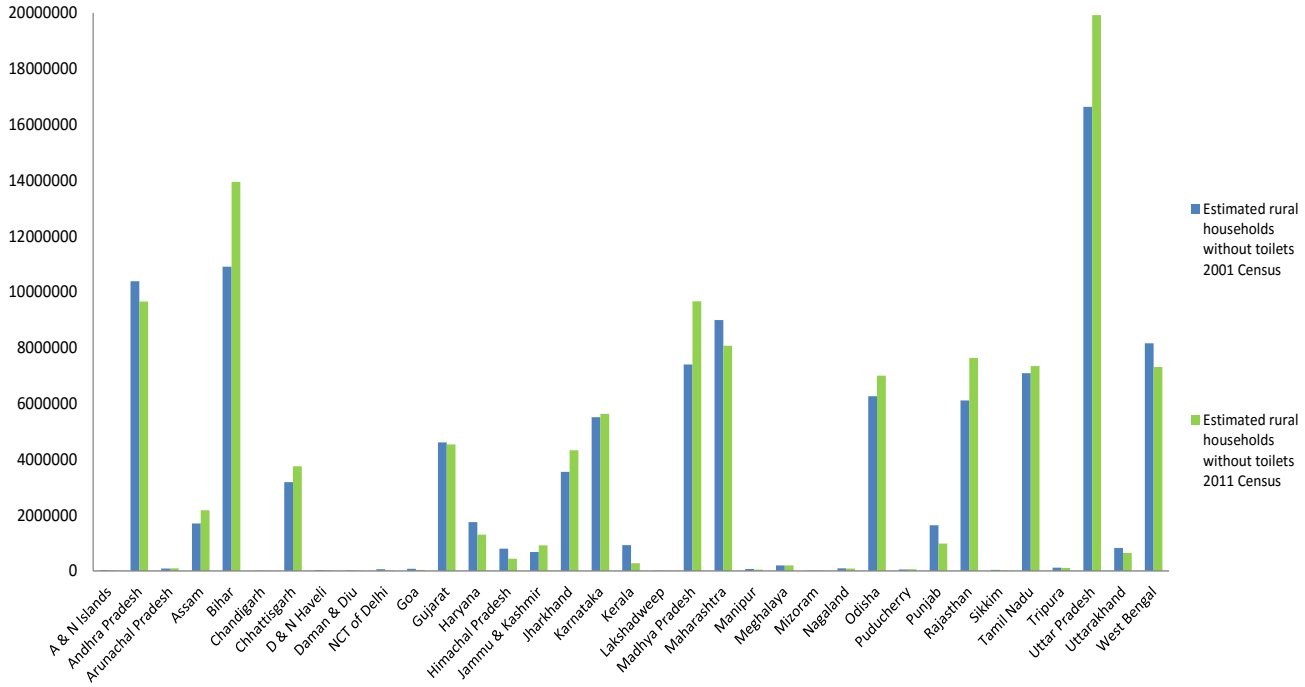

Figure 3: Estimated rural households without toilets in 2011 compared to 2001

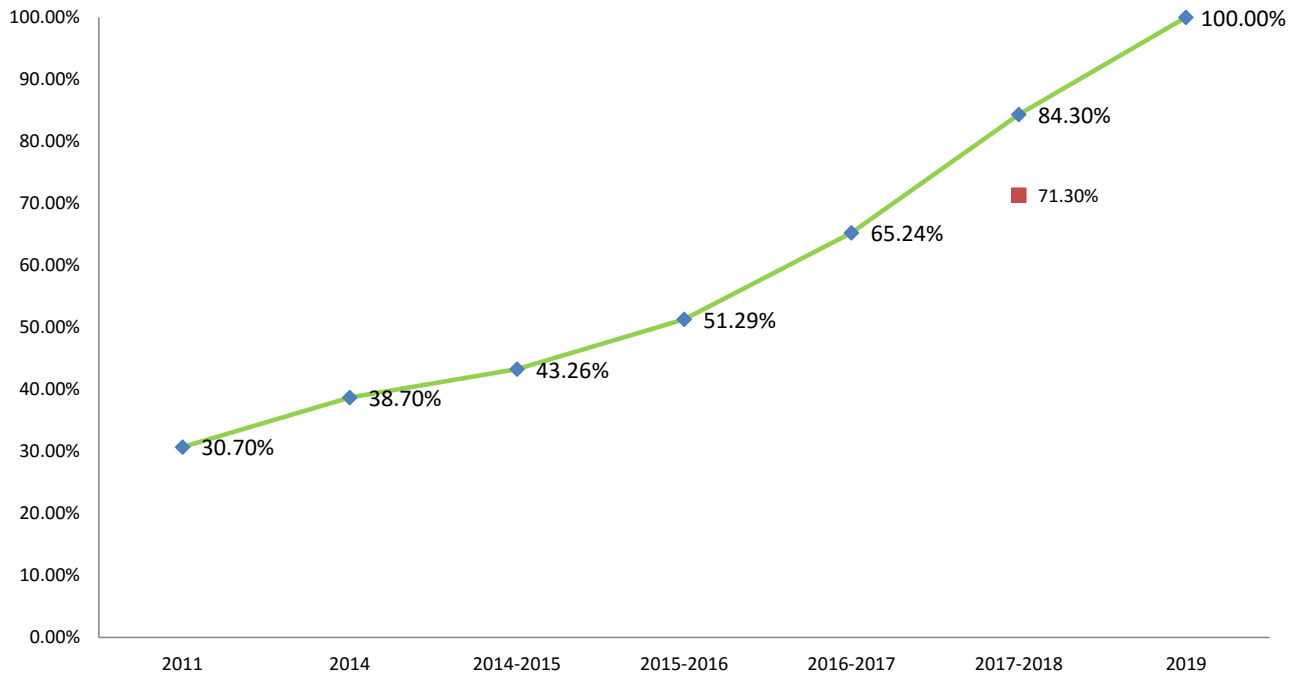

Figure 4: Progress in coverage of rural sanitation in India 2011-19

Source: Census of India (2011), 'Availability and type of latrine facility: 2001-2011', (2018) NSSO report no.584: Drinking Water, Sanitation, Hygiene and Housing condition in India, NSS 76th round (July –December 2018), (2014-2019) Data sheet and swachhbharatmission.gov.in accessed on 15th October 2019

construction-centric approach, since like all previous interventions it has to depend on the government machinery. Nevertheless, if SBM sustains, it would have far-reaching impacts on global sanitation, and would accelerate the process of achieving the targets of SDG 6, globally.

As per the SBM – *Grameen* data, majority of the States have achieved or are on the verge of achieving total sanitation coverage. However, Goa (76.22%), Odisha (84.62%), and Telangana (96.18%) were working towards achieving total (100%) coverage. Under the SBM guidelines, the process of declaration of a village as ODF is based on a resolution of the *Gram Sabha* (local village assembly). However, the recent data is based on the declaration of the *Sarpanch* (village leader) and needs to be taken as preliminary or provisional till the time the process under the guidelines is properly completed.

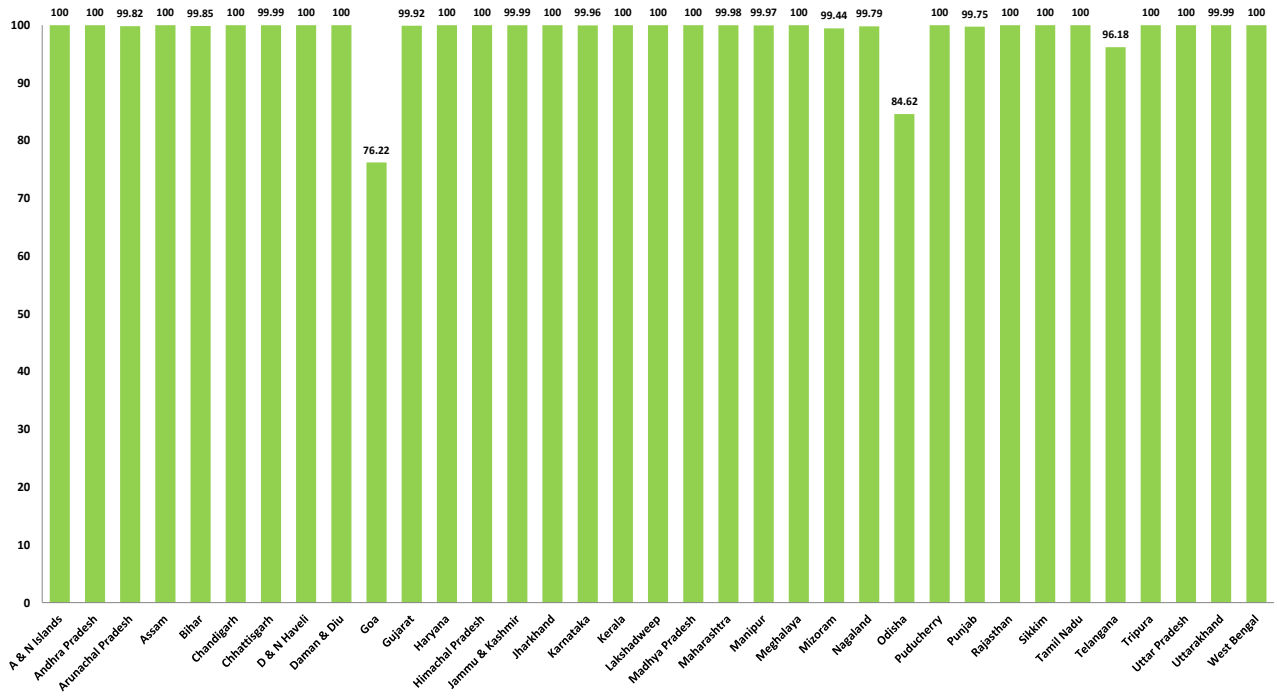

Figure 5: State-wise IHHL Coverage (Cumulative)

Source: swachhbharatmission.gov.in accessed on 6th June 2019

2.1 Rural Sanitation Policy Framework in India

The Central Government in India frames policies and guidelines for sanitation and provides financial as well as capacity-building support, while the subject is in the States' list. In rural India, the responsibility for provision of sanitation facilities predominantly rests with local governments particularly the *Gram Panchayat*, to the extent that the State Government transfers functions, funds, and functionaries to the local government. However, in many States this is not done properly and there is need for empowerment of the PRIs. The Eleventh Schedule added to the Constitution of India by the 73rd Amendment Act lists a comprehensive range of development activities to be entrusted to PRIs as part of the decentralisation process, including provision of civic amenities like sanitation.

The SBM aimed to accelerate efforts to achieve universal sanitation coverage, improve cleanliness, and eliminate OD in India by October 2, 2019. A significant amount of investment in sanitation has been made under this programme (INR 52646.76 crores from August 2014 to November 2018 under SBM- *Grameen*) [5]as compared to the other sanitation programmes as depicted in Table 1.

Table 1: Budgeted versus actual expenditure on rural sanitation (INR crore)[6]

Year	Budgeted	Actuals	% of Budgeted
2009-10	1,080	1,200	111%
2010-11	1,580	1,580	100%
2011-12	1,650	1,500	91%
2012-13	3,500	2,474	71%
2013-14	3,834	2,244	59%
2014-15	4,260	2,841	67%
2015-16	3,625	6,703	185%
2016-17	9,000	10,484	116%
2017-18	13,948	16,888	121%
2018-19	15,343	14,478	94%

Political will to achieve sanitation for all has helped give this issue a massive push. In rural India, the SBM looked towards improving the levels of cleanliness through improved solid and liquid waste management and making villages ODF, clean, and sanitised. The Mission also gave flexibility to the State Governments, to adopt State-specific implementation policy as well as in the usage of funds and mechanisms adopted. During the 2018 budget speech, an announcement of a new rural sanitation scheme called Galvanizing Organic Bio-Agro Resources Dhan (GOBAR-DHAN) was made by the then Finance Minister. The aim of this scheme was to manage and convert cattle dung and solid waste in farms to compost, bio-gas, and bio-CNG.[7] This scheme would support creating clean villages, which is the objective of SBM -*Grameen* while also providing villagers with economic and resource benefits. The scheme is a key component of the ODF Plus strategy of SBM –*Grameen*, and focuses on aiding the rural community in management of bio-waste.[8]

Several government reports and coverage data have showcased that the SBM - *Grameen* has been able to achieve significant strides over the past years since its implementation[9]. However, previous experiences caution the inadequacy of the rural communities to sustain their efforts, while the interventions and their impacts need to be looked at holistically, rather than having a piecemeal approach. Overall, the public sector needs to play a more prominent role.

[5] https://visualize.data.gov.in/?inst=5c6208af-7f00-4892-b2b0-266e6ad3b0a2

[6] https://www.prsindia.org/parliamenttrack/budgets/demand-grants-analysis-drinking-water-and-sanitation

[7] http://pib.nic.in/newsite/PrintRelease.aspx?relid=176057

[8] Operation Manual GOBAR – Dhan MIS (Implementing Agency) Ministry of Drinking Water and Sanitation

[9] NSSO Report, 2019.

2.2 Issues and Challenges in Rural Sanitation Sector

Rural sanitation in India has been facing numerous challenges. The sheer scale of around 600 million people practicing OD has been a major challenge. As India is striving to be ODF, there are issues and challenges which continue to be tackled by successive sanitation programmes. Some of them are as follows:

1. Coverage of toilets does not translate to usage of toilets
2. Variability of location-specific issues and hence solutions would also be different
3. Lack of water supply for toilets
4. Improper solid and liquid waste management
5. Inadequate human resources
6. Inappropriate toilet technologies
7. Integrating WASH solution for health: Unhygienic conditions and practices
8. Discrepancies between reported data and ground realities
9. Long-term sustainability of interventions through strategies and plans for community ownership (of resources)
10. Gender Considerations

These points are explained below:

2.2.1 Coverage of Toilets Does Not Translate to Usage of Toilets

An important lesson learnt from the CRSP is that the construction of toilets did not translate to usage of toilets. The programme had focused on construction of household toilets and promotion of pour-flush toilets. However, there was a lack of focus on behaviour change towards the use of toilets. The succeeding TSC programme followed the demand-driven approach focusing on awareness generation. It was unfortunate that the sound policies under the TSC did not effectively result in significant improvements in sanitation because interventions were poorly implemented[10].

[10] Coffey and Spears, Where India Goes, 2017

It is generally acknowledged that SBM has resulted in construction of a huge number of toilets and significant increase in awareness about the need to avoid OD. However, eradication of this age-old behaviour of OD requires sustained efforts. A major threat to sustaining an ODF status is the inconsistent usage of toilets that could result in slippage of ODF status. The thirteenth Annual Status of Education Report (ASER 2018) released on January 15, 2019 (their analysis was based on data from government schools of 596 out of 619 districts) highlighted the fact that there has been a significant decrease in rural schools without toilets with only 3% of schools that lack toilet facilities. However, only 74.2% of schools in rural India had usable toilets while 22.8% had toilet facilities that are not usable (ASER 2018). The situation is even bleaker in few States.

2.2.2 Variability of Location-Specific Issues and Hence Solutions would also be Different

A significant section of people who lack sanitation are ever so often found in areas with a challenging topography and climate, which could result in technical issues for sanitation options. For example, sanitation solutions such as the twin leach pit toilets should not be constructed in areas with high water table or flood-prone areas, which poses a risk of contamination and terrain where leaching may not be feasible (such as hard rock areas). There is a need to acknowledge that one-size-fits-all solutions and strategy will not work and site-specific solutions are required to ensure safe sanitation options for all.

The variability of behavior with regard to sanitation has been a prevalent issue in India. Various studies have revealed that in many rural areas in India, people prefer defecating in the open as they perceive it to be cleaner, healthier and sometimes 'religiously acceptable' than using toilets inside the home. In many rural areas, toilet structures are used for other purposes like animal shelters or store rooms, and the owners/family go out of their homes to defecate in the open. The experience in the previous sanitation programmes in India had established that access to toilets without the inclination to use them

regularly is a major threat to achieving and sustaining the ODF status. Though SBM tried to address this problem by behaviour change communications (BCC), it has not been entirely successful, as seen in the recent surveys[11].

Improper implementation of sanitation interventions, which was the cause of failure of earlier sanitation efforts seems to persist even under SBM. Research done by the Research Institute for Compassionate Economics (R.I.C.E.)[12] in rural Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh indicated that latrine construction was coerced through various means, which included harassment, fines, withholding or threatening to withhold other government benefits. The researchers also found that local SBM implementing officials were far more likely to prioritise on the need for latrine construction rather than to prioritise the use of latrines. Its effect can be visualised by the fact that the RICE survey found 40% of households with a latrine have at least one person who defecates in the open, and 56% of all households have at least one person who defecates in the open. The National Statistical Office's (NSSO) 'Drinking Water, Sanitation, Hygiene and Housing Condition in India', 76th round of National Sample Survey (NSS) 2019 reported that only 71.3% of households in the rural India had access to latrine (*respondent bias is expected). It stated that out of these households with access to latrine, only about 94.7% of males and 95.7% of females in the rural areas used latrine regularly. Thus, the underlying problem of scaling up effective behavior change persists.

2.2.3 Lack of Water Supply for Toilets

The lack of water supply for toilets can increase the risk of faeco-oral contamination. The lack of water supply for sanitation is a key issue leading to non-usage of toilets[13]. Lack of adequate water supply inside or near toilets requires users to fetch water from a distance before using the toilet, which is an additional time-consuming task, and therefore discourages them from using these facilities regularly. Moreover, lack of water creates a burden on women who many times have the additional responsibility of ensuring that there is sufficient water for sanitation and for cleaning the toilet pots. In water-scarce areas, toilets are usually used only when there is availability of water. One of the feasible solutions can be to design toilets that consume less water. A case in point is the India Railways considering the development of waterless (vacuum) and odorless toilets in trains.

2.2.4 Improper Solid and Liquid Waste Management

The SBM -*Grameen* has constructed more than 1009.29 lakh toilets since October 2, 2014.[14] Management of liquid and solid waste generated from these toilets as well as other pre-existing toilets poses various challenges for rural sanitation. Majority of the rural India lacks sewerage systems. Hence, safe management of faecal waste generated from on-site containment systems is essential.

The safely managed sanitation in rural areas is largely dependent on the toilet technologies adopted, and the space available for on-site containment systems. While twin leach pits when correctly constructed and operated have a simpler on-site treatment process, other sanitary systems such as single pits, ill-designed septic tanks, etc., would require services for emptying and transportation of the faecal sludge to the treatment facilities for its subsequent reuse or disposal. However, without the right design and lack of treatment facilities for faecal sludge, the faecal matter would be dumped in the open environment (near households) affecting public health and contaminating the soil and water sources. The stored faecal matter from ill-designed toilets in flood-prone areas would result in more complex pollution and health problems during monsoons. Also, the high density of pit latrines and poorly designed and managed septic tanks can affect the water quality of shallow aquifers due to nitrate and bacterial contamination.

Developing Faecal Sludge Management (FSM) services[15] is dependent on several factors such as the size, population of the village, and willingness to pay for services while their economic viability is crucial for the sustainability of services. Additionally, the absence of appropriate

[11] NSSO report, 2019

[12] https://riceinstitute.org/research/changes-in-open-defecation-in-rural-north-india-2014-2018-2/

[13] Routray et al., Socio-cultural and behavioural factors constraining latrine adoption in rural coastal Odisha: an exploratory qualitative study, BMC Public Health 2015; 15, 880.

[14] http://sbm.gov.in/sbmreport/home.aspx last accessed on 16 October 2019

[15] Verhagen and Scott, Safely Managed Sanitation in High-Density Rural Areas : Turning Fecal Sludge into a Resource through Innovative Waste Management, The World Bank, 2019.

FSM services could result in an increase in manual cleaning, which could result in stigma and caste-based[16] oppression.

2.2.5 Inadequate Human Resources

In the past, various training and capacity building programmes have been conducted under different sanitation schemes in India such as those conducted by the Key Resource Centres (KRCs). There is a need to build human resources in a more systematic and objective-oriented manner as outlined in the Rural Sanitation Strategy Report 2019-2029[17]with concrete plans for sustainability of outcomes. The training and capacity building programmes should include designing and constructing new sanitation infrastructure, training local people on repairs and preventive maintenance of sanitation structures created, community mobilisation, sanitation and hygiene promotion, O&M, mechanised desludging of toilet pits using new technologies like suction/vacuum systems, new pipe materials and installation techniques (trenchless), and using passive solar energy. The timing and synchronisation of the training are extremely important for better training and capacity-building outcomes. Inadequate capacity can result in significant negative impact on rural sanitation.

Similarly, the process of ODF verification starts with a *Gram Sabha* resolution (for the entire *Gram Panchayat* or even a village) of self-declaration of achievement of ODF status. The process entails two rounds of verifications; the second level to be carried out within six months of the first-level verification, which is the key to ensure that villages do not lose their ODF status. As per the guidelines for ODF verification issued by the Department of Drinking Water and Sanitation[18], there is a need for training personnel on the entire verification process (Village/*Panchayat* level, Block Level, District level, State level) for attaining ODF status. These personnel need to be well-trained in the safe rural sanitation practices as well as in the safe disposal of faecal matter. Human resource development in this matter is an ongoing process under various sanitation programmes, but can be planned and managed in a more effective manner. Additionally, government officials with the responsibility of verifying ODF status tend to have additional responsibilities resulting in work overload, which could result in a compromised verification process.

In case the persons responsible for designing and constructing new sanitation infrastructure, O&M are unaware of the procedures to be followed, the standards that have to be met, and the geographically appropriate technology, it will result in unsatisfactory design, faulty construction, and maintenance which could cause faeco-oral contamination leading to health hazards. There is also a need to empower personnel with the right tools (including software) and methods of community mobilisation, sanitation, and hygiene promotion. NGOs, CSOs, and training institutes should play an important part in training and skilling additional human resources required for sustainable sanitation.

It has often been seen that the Government officers are transferred frequently and most do not have the requisite multi-faceted expertise in water and sanitation matters. Therefore, at the Central, State, and local levels, there are discontinuities in efforts and lack of accountability for delivering outcomes.

2.2.6 Inappropriate Toilet Technologies

The use of inappropriate toilet technologies would result in the sanitation systems failing and hence their usage would further result in contamination causing serious health hazards. Slippage from ODF status could happen when people stop using the toilets either because the toilet sub-structure is faulty or the super-structure is very claustrophobic or the appropriate technologies for treating toilet waste are not available. There is a major gap in data to authenticate the quality of the toilets constructed and whether they adhere to the specifications. The 51st report by the Standing Committee on Rural Development[19] had raised the issue regarding the durability and quality of construction of the toilets. Appendix-1 has further details.

Site-specific technological solutions[2021] that can ensure safe sanitation are required. In terms of the adequacy of the size of the pit latrines, the findings of the 2018-survey

[16] Where India Goes: Abandoned Toilets, Stunted Development and the Costs of Caste, 2017

[17] From ODF to ODF Plus Rural Sanitation Strategy 2019-2029, DDWS, Ministry of Jal Shakti

[18] ODF Sustainability Guidelines, 2016 (Grameen)

[19] Standing Committee on Rural Development-51st Report, 2017-18

[20] Handbook on Technical Options for on-site Sanitation, MDWS, 2012

[21] A Guide to Decision making-Technology Options for Urban Sanitation in India, WSP-MoUD Report, 2008.

by RICE highlighted key issues regarding acceptance of toilet technologies. The survey (primarily aimed to measure OD in India) showed that government funded pit latrines were on average 150 ft^3 smaller than privately constructed pit latrines, and were less likely to be used due to additional concerns like purity and pit emptying.[22]

There also seems to be a preference for septic tank toilets. The National Annual Rural Sanitation Survey Round-2[23] (NARSS) (2018-2019) reported that out of 84,590 households with toilets, 34.1% had a septic tank with a soak pit, while 3.3% had a septic tank without a soak pit. WaterAid had reported in their "Strategy for Faecal Sludge Management in Rural India" that as per the data from the NARSS 2018-2019, only 26.6% toilets are twin leach pits, while almost 28% toilets are septic tanks out of which 6% are tanks without a soak pit. Appendix-2 to this paper has elaborated the highlights. WaterAid also highlighted that what is perceived as septic tanks do not adhere to the Bureau of Indian Standards (BIS).[24] The WaterAid report further stated that there is no data to authenticate the quality of toilets built with houses constructed under the *Pradhan Mantri Awas Yojana (PMAY)* and their adherence to standards. The BIS under its code of practice has cautioned that "unsatisfactory design, construction, and maintenance of septic tanks constitute a health hazard."[25] Hence, it is imperative that proper design, construction, and maintenance of septic tanks are followed.

2.2.7 Integrating WASH Solution for Health: Unhygienic conditions and practices

Even if there is total coverage and usage of toilets, unhygienic conditions and practices could result in faeco-oral infections. There is an interdependent nature of outcomes of dealing with poverty, nutrition, inequality, health, water, sanitation, and hygiene as failures in either threatens the sustainable well-being of all.

Human excreta can contain several helminthic pathogens (in addition to bacterial, viral, and protozoan pathogens). Soil-transmitted helminths are the most common parasites infecting millions of people worldwide. Chronic exposure and contamination of such faecal pathogens (through faecal-oral routes) is common in developing countries like India. It leads to a subclinical condition called environmental enteropathy[26] (EE or tropical enteropathy) wherein blunting of intestinal villi and intestinal inflammation occurs. EE is marked by increased intestinal permeability, impaired gut immune function, mal-absorption, growth faltering, and, potentially, oral vaccine failure. The key impact of EE may be on malnutrition, a well-recognised problem in the developing nations where 26% of children under the age five are underweight; also 21% of deaths in children less than five years of age are due to malnutrition. This is also related to stunting and wasting amongst children; stunting (low height for age) may be caused by frequent infections and wasting (low weight for height) is a strong predictor of mortality among children under five years of age.

2.2.8 Discrepancies between Reported data and Ground Realities

Though India is being reported to be on the verge of achieving ODF, several researchers, government departments, and committees have raised doubts over the credibility of the ODF data. The 51st report by the Standing Committee on Rural Development had recommended removing the number of defunct toilets from the data stating that it "does not reveal a real picture of ODF until and unless the coverage data and usage data in regard to the functional toilets are same". The Government of India as a part of its focus on behavior change has funded many NGOs in rural and urban areas for social behavior change campaigns (SBCC). BBC Media Action, Dettol, HUL, and many NGOs as well as corporates have played a major role in advising beneficiaries to maintain the toilets on their own and continue usage of toilets.

As stated earlier, the guidelines for ODF verification recommend at least two verifications to be carried out. The first verification is carried out within three months of the declaration and the second verification should be carried out after around six months of the first verification.

[22] https://riceinstitute.org/research/measuring-open-defecation-in-india-using-survey-questions-evidence-from-a-randomized-survey-experiment/ last accessed on January 3, 2020

[23] National Annual Rural Sanitation Survey Round-2 Report, 2018-19.

[24] https://www.wateraidindia.in/sites/g/files/jkxoof336/files/strategy-for-faecal-sludge-management-in-rural-india-.pdf

[25] IS : 2470 (Part 1) - 1985, (Reaffirmed 1996) Indian Standard Code of practice for installation of septic tanks part i design criteria and construction (Second Revision), Third Reprint OCTOBER 1993

[26] Augsburg et al., Sanitation and child health in India, World Development, Volume 107, July 2018, Pp 22-39

However, as it is perceived that the States have the liberty to modify the guidelines, there have been reports that the guidelines are not followed. These guidelines need to be refined further to streamline the verification process by tracking individuals in a household rather than a household in general, which would make the verification process more refined.

2.2.9 Long-term Sustainability of Interventions through Strategies and Plans for Community Ownership (of resources)

The long-term sustainability of interventions in WASH is a complex and persistent challenge. It had been observed that a large proportion of people who have access to toilet can experience major failings in access, sometimes within relatively short periods. In some rural areas, the beneficiaries of sanitation interventions lack support and reliable financing, which can easily lead to inadequate maintenance, breakdowns, and result in dysfunctional toilets. Micro-financing schemes have supported many Self-Help Groups (SHGs) in the country in providing handholding support in terms of financial as well as technical aspects. However, there is less awareness on these issues in the rural communities.

Interventions without proper solid and liquid waste management threaten the well-being of the community. The problem of an increasing population also threatens the sustainability of the interventions as the solutions may not be sufficient to ensure safe sanitation.

2.2.10 Gender Considerations

SBM – *Grameen* has tried to address the needs of women and adolescent girls through effective policies, construction plans, effective awareness programmes (focused on women/adolescent girls), and their inclusion in planning/implementation activities. SBM highlights the active role of women SHGs in community mobilisation and toilet construction. SBM and *Swachh Bharat: Swachh Vidyalaya* (SB:SV) of the Department of Drinking Water and Sanitation (DDWS) under the Ministry of Jal Shakti (MoJS) includes guidelines for sanitation in schools and emphasises Menstrual Hygiene Management (MHM) facilities and awareness raising. *Swachh Shakti*, another initiative for women, is a national event that is organised vevery year to focus on the leadership role played by rural women in promoting SBM. Despite these commendable initiatives, a lot remains to be done in making rural women and adolescent girls actually use the toilets at home/school and follow hygiene habits in a sustainable manner for better health and quality of life outcomes.

3. URBAN SANITATION IN INDIA

India, with around 459 million people living in the urban areas, is one of the fastest urbanising nations facing several issues in urban sanitation infrastructure and management. Though urban sanitation has made considerable progress, yet several city administrations are still grappling with the enormous challenge of providing improved and adequate sanitation facilities to its citizens. The exponential growth of urban population, which is further expected to increase from 33.6% to 50% by 2030 adds to the concern.

3.1 Urban Sanitation Policy Framework in India

Although water supply and sanitation were added to the national agenda in the first Five-Year Plan in 1951, yet the urban sanitation sector remained neglected for a long time with negligible investments being made to the sector. However, the government had increased the financial commitment to the sanitation sector since 1980, with focus being mainly on rural sanitation. The Integrated Low-Cost Sanitation Scheme (ILCS) for urban areas was launched in 1980-1981 with the objective of converting low-cost sanitation units through sanitary two-pit pour-flush latrines and superstructure, and appropriate variations to suit local conditions to address the issue of OD in urban areas.

The drafting of the National Water Policy in 1987 aimed towards aligning with the International Drinking Water Supply and Sanitation Decade Programme (1981-1991) and recognised the need for and laid targets for the provision of sanitation services in both rural and urban areas. Another remarkable milestone in the early development phase was the 74th constitutional amendment in 1993[27] that recognised the roles of ULBs in this matter.

The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act enacted in 1993 was an important development in the urban sanitation sector. However, since the same was not enacted in most States[28], the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 was passed, which imposed sanitation related commitment upon local bodies including the provision of infrastructure such as community latrines to replace dry latrines.

Accepting the strong association between sanitation and health, the National Health Policy, 2000, stressed the need for strengthening sanitation and other vital development indicators that directly contributes to public health indicators. The *Valmiki Ambedkar Awas Yojana* (VAMBAY)[29]2001 also recognised the importance of sanitation and included it in the housing for urban slum dwellers by construction of community toilets for the unserved population.

The Jawaharlal Nehru National Urban Renewal Mission (JnNURM) launched in 2005 intended to provide basic services to urban poor including improved housing, water supply, and sanitation. JnNURM thus supported infrastructure projects related to water supply and sanitation, sewerage, solid waste management inter alia other infrastructure in urban areas. With the introduction of the JnNURM, the Government's thrust moved towards service delivery to urban areas and not on provision of infrastructure alone. Hence, the Ministry of Urban Development (MoUD), Government of India, launched the Service Level Benchmarking (SLB) covering water supply, wastewater, solid waste management, and storm water drainage. Thus, benchmarking was recognised as an important mechanism for performance management and accountability in service delivery. It involved the measurement and monitoring of service provider performance on a systematic and continuous basis on 28 performance indicators in the areas of water supply, waste water management, solid waste management, and storm water drainage. Sustained benchmarking was to assist the utilities in identification of performance gaps and introduction of improvements through the sharing of information and best practices, eventually ensuing in better services to people.

The tenth Five-Year Plan (2002-2007) placed significant emphasis on water supply and sanitation. Urban sanitation gained tremendous importance with the

[27] *The amendment provided a constitutional foundation to the local self-government units (municipalities) in the urban areas (Article 243P to 243Z of the Constitution). Municipalities can be either Nagar Panchayats, Municipal councils in the case of smaller urban areas and Municipal corporations for larger urban areas). State Governments have amended their municipal laws accordingly.*

[28] *It applies to the States of Andhra Pradesh, Goa, Karnataka, Maharashtra, Tripura, West Bengal and to all UTs. It shall also apply to the other States that adopts this Act by resolution under clause (1) of Article 252 of the Constitution.*

[29] VAMBAY aimed to enhance the conditions of the urban slum dwellers living below the poverty line facilitating the construction and upgradation of dwelling units for slum dwellers and providing a healthy and enabling urban environment through community toilets under *Nirmal Bharat Abhiyan*

country's first comprehensive National Urban Sanitation Policy (NUSP) in 2008 by MoUD. The vision of NUSP was to transform all urban areas into community-driven, totally sanitised, healthy, and livable cities and towns ensuring and sustaining good public health and environmental outcomes for all the citizens with special focus on developing hygienic and affordable sanitation facilities for the urban poor and women. For achieving the urban sanitation goals, the NUSP provided the State Governments with a framework mandating each State to prepare State Level Sanitation Strategy and the cities to adopt a City Sanitation Plan (CSP).

The *Nirmal Shahar Puraskar* was introduced in 2010 for encouraging cities to strive for 100% access to sanitation facilities and 100% safe disposal of all city generated waste. The rating and award were based on the premise that improved public health and environmental standards would be two outcomes that cities must ensure for urban population. In doing so, the State Governments and urban areas were to adopt a holistic, city-wide approach while incorporating processes that help reach outputs pertaining to goals of the NUSP. The *Rajiv Awas Yojana* (RAY) in 2011, aimed towards the creation of slum free cities with inclusive and equitable cities in which every citizen has access to basic civic infrastructure (including water and sanitation), social amenities and decent shelter.

By the year 2012, a total of 29 out of 35 States and UTs were preparing State Sanitation Plans, and 158 cities (out of 4041 cities and Census Towns) were developing City Sanitation Plans. There was also an improvement in access to sanitation with more than 91% using some form of sanitation services in 2014 as compared to 85% in 2008. SLB of urban services was also piloted and scaled up to more than 1,756 cities. Despite these encouraging results, there was need for investment and comprehensive plan for enhancing the urban sanitation sector. The important policies in the urban sanitation sector have been summarised in Table 2.

Table 2. Urban Sanitation Policies in India

Policy	Year	Description
Integrates low-cost sanitation scheme (ILCS) for urban areas	1980-81	Aimed to convert/construct low-cost sanitation units through sanitary two-pit pour-flush latrines with superstructures and appropriate variations depending on local conditions.
National Water Policy	1987	Recognised the need for and laid targets or the provision of sanitation services in both rural and urban areas.
The 74th Constitutional Amendment Act (CAA)	1993	The Act enabled the State Governments to pass their respective legislation. This, in turn, shared the responsibilities of water supply and sanitation services to the ULBs through decentralisation and ensuring people's participation.
The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act	1993	The Act prohibited the construction of dry latrines and employment of manual scavengers.
National Health Policy	2000	Recognised the relationship of unsafe drinking water and unhygienic sanitation in urban settings.
The *Valmiki Ambedkar Awas Yojana* (VAMBAY)	2001	It included sanitation for urban poor and slum dwellers.
Jawaharlal Nehru National Urban Renewal Mission (JnNURM)	2005	Provision of sanitation infrastructure

Policy	Year	Description
National Urban Sanitation Policy (NUSP)	2008	Aimed to transform all urban areas into a community-driven, totally sanitised, healthy, and liveable cities and towns ensuring and sustaining good public health and environmental outcomes for all citizens.
Service Level Benchmark (SLB)	2008	The SLB included 28 performance indicators in the domain of water supply, waste water management, solid waste management, and storm water management for assessment and accountability of service levels in the ULBs.
Nirmal Shahar Puraskar	2010	It encouraged all cities to strive for 100% access to sanitation facilities and 100% safe disposal of all city generated waste.
Rajiv Awas Yojana (RAY)	2011	It brought all existing slums, notified or non-notified within the formal system and enabled them to avail the basic amenities including sanitation.
Prohibition of Employment as Manual Scavengers and their Rehabilitation Act	2013	Responsibility on ULBs to prohibit manual scavenging and provide sanitation infrastructure
Swachh Bharat Mission	2014	For creating ODF areas and achieving 100% scientific management of municipal solid waste in all statutory towns in the country.
Atal Mission for Rejuvenation and Urban Transformation (AMRUT)	2015	Aimed to provide basic services (e.g., water supply, sewerage, and urban transport) to households and build amenities in cities which will improve the quality of life for all, especially the poor and the disadvantaged.
Swachh Survekshan (Box-1)	2014 - 2019	Aimed to inculcate competition among urban areas for enhancing the performance of cities on sanitation and cleanliness.
National Policy on Faecal Sludge and Septage Management (FSSM)	2017	Aimed to set the context, priorities, and direction for, and to facilitate, nationwide implementation of FSSM services in all ULBs for ensuring safe and sustainable sanitation for every household, street, town, and city.
SMART City	2015	Have the objective of promoting sustainable and inclusive cities that provide core infrastructure (including adequate water and sanitation) and give a decent quality of life to its citizens, a clean and sustainable environment, and application of smart solutions.

Almost 96.2% of the households in the urban areas have access to toilets in 2019 as depicted in Figure 6. While there has been a considerable improvement at the national level since 2011 with some States making remarkable progress during this period. Figure 7 showcases the percentage of the urban households without toilets in 2019 as compared 2011.

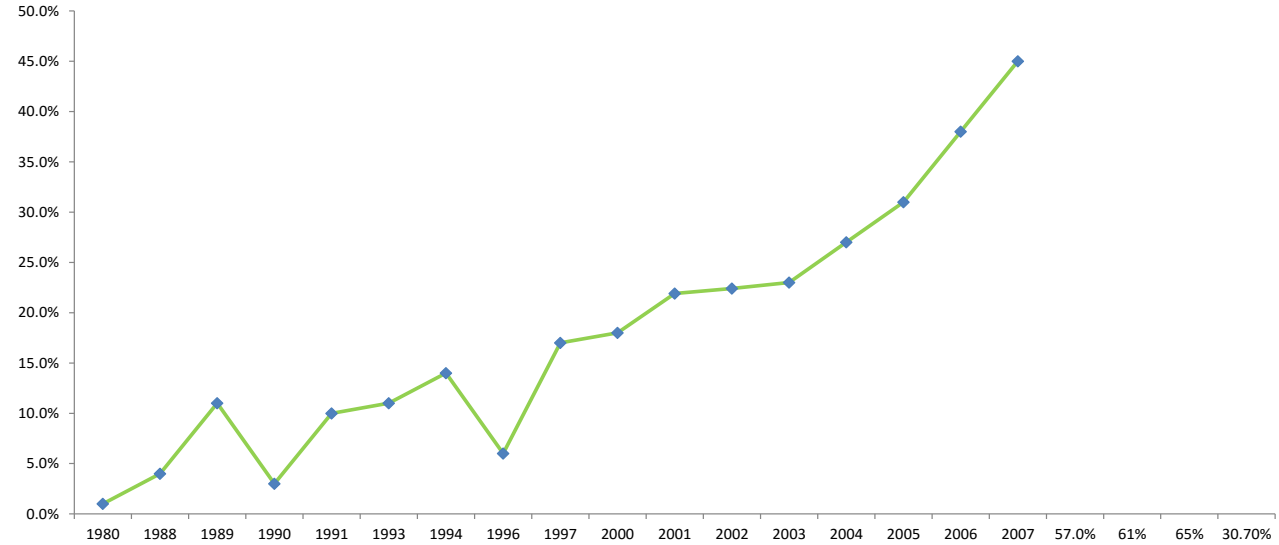

Figure 6: Progress in coverage of urban sanitation

Source: Planning Commission 2002, NSS 1993, 2002, 2003, 2008, 2016, 2019

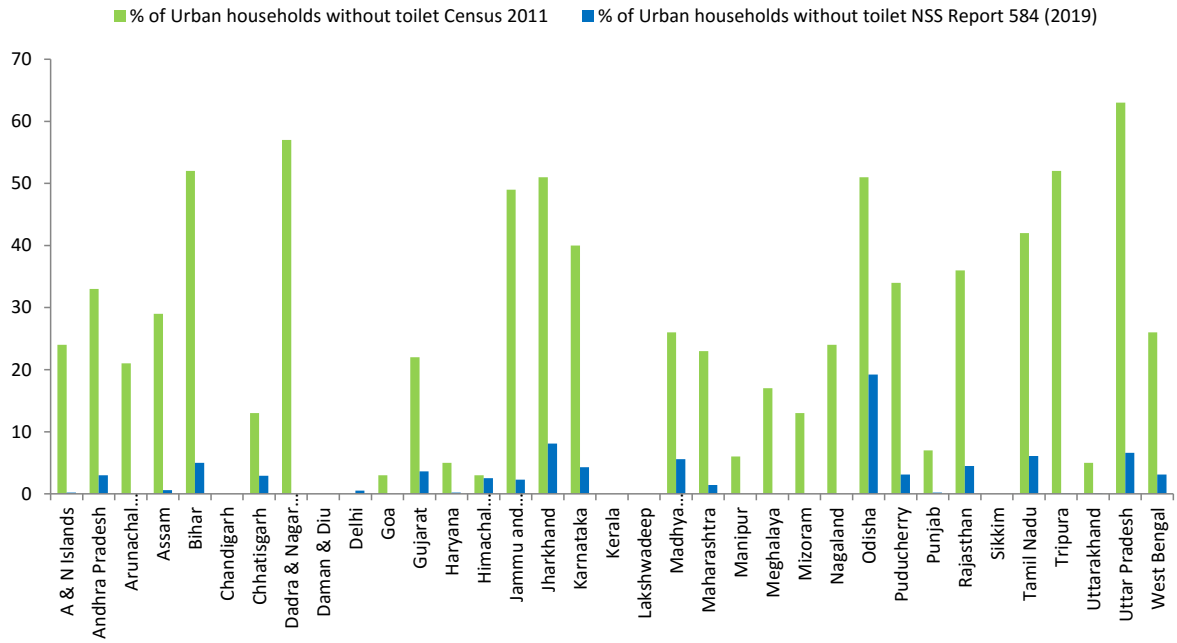

Figure 7: State-wise comparison of households without toilets in 2011 and 2019

Source: Census of India, 2011 & NSO, 2019

Under the SBM (Urban), 4023 out of 4238 ULBs in India (94.93%) have been declared ODF[30]. Since the announcement of SBM, about 60,96,135 individual toilets and 5,61,298 community/public toilets have been constructed in the urban areas,[31] and a total of 52,457 wards out of 84,456[32] wards in the country have been declared ODF. Despite these landmark achievements in terms of toilet coverage, the sanitation trajectory demands attention on several fronts.

[30] http://sbmodf.in/ last accessed on January 2, 2020

[31] http://swachhbharaturban.gov.in/dashboard/ last accessed on January 2, 2020

[32] http://swachhbharaturban.gov.in/dashboard/writereaddata/Statewise_status_of_implementation.pdf last accessed on January 2, 2020

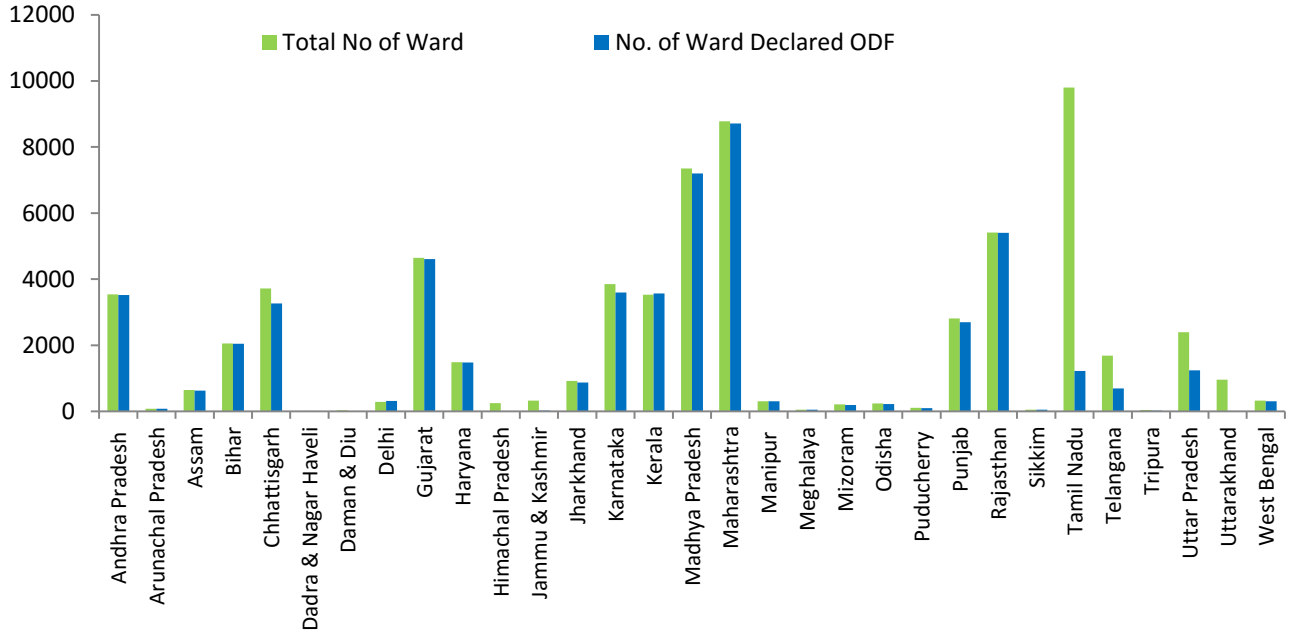

Figure 8: State-wise comparison of wards with ODF declaration

Source: http://swachhbharaturban.gov.in/dashboard/?id=rrxo4z4zz1xa2hp2 last accessed on May 6, 2019

The progress in coverage of sanitation is yet to be complemented with improved sanitation management in urban India. As seen in Table 3, only 39% of urban areas are connected with sewers, while 48.9% have septic tanks.

These deficits are not uniformly distributed and vary between different States as well as cities. Chandigarh is the only UT to have 100% toilets connected to piped sewer system, followed by Daman and Diu (20%), Delhi (15%), Jammu and Kashmir (14.7%), and Gujarat (13.5%) and majority of the States have less than 1% toilets

Table 3: Households with Access to Latrines, by Type

Types of latrines used	Percentage distribution of households		
	Rural	Urban	All
Flush pour-flush to piped sewer system	1.6	39.1	17
Flush pour-flush to septic tanks	50.9	48.9	50.1
Flush pour-flush to twin leach pit/single pit	32.3	8.7	22.5
Flush pour-flush to elsewhere	0.2	0.6	0.3
Ventilated improved pit latrine	1.4	0.4	1
Pit latrine with slab	11	1.9	7.3
Pit latrine without slab/open pit	0.8	0.1	0.5
Composting latrine	0.2	0	0.1
Others	0.1	0.1	0.1
Not used	1.7	0.1	1

Source: NSSO, 2019

connected. Only 81 cities in the country have at least 80% of all constructed toilets attached to sewerage systems or have septic tanks. Approximately 62000 MLD of sewage is generated, of which the treatment capacity is only 23277 MLD from 816 Sewerage Treatment Plants (STPs). Among the 35 metropolitan cities generating around 15,644 MLD of sewage, only 51% treatment capacities exist indicating treatment capacity for around 8040 MLD (Central Pollution Control Board (CPCB), 2018). Besides, several studies also highlight issues such as non-operation and poor management of STPs. The CPCB annual reports 2017-18 refers to inspections undertaken for 50 STPs on river Ganga front towns, of which 26 were found to be non-operational and 4 non-complying.

SBM (Urban) has tried to bring about behavioural change towards healthy sanitation practices, generate awareness about sanitation and its linkage with public health, capacity augmentation for ULB's, to create an enabling environment for private sector participation in Capex (capital expenditure) and Opex (O&M expenditure).

These objectives depict improvement over the earlier programmes, especially with a target-driven goal for achievement of ODF with a strong focus on behavioral change and awareness generation within the scheme framework. Also, the focus on enabling private sector participation in the capital expenditure has enabled business entities to support the SBM (U). The setting up of *Swachh Bharat Kosh* (SBK) by the Government of India has enabled several large as well as small private and public companies to support the SBM. Under SBM (U), with an estimated cost of implementation of INR62,009 crores, the Government of India's share has been allocated as INR14623 crores[33] and a minimum additional amount equivalent to 25% to be contributed by the States and the balance fund to be generated through various funding sources including private sector participation, additional resources from State Governments, user charges, SBK, Corporate Social Responsibility (CSR), external assistance, etc. Table 4 details the amount sanctioned under the SBM (U).

Table 4: Sanctioned amount under SBM(U) in INR crores[34]

Year	SWM	IHHL & CTBs	IEC	CB &A & OE	Supple-mentary	Total
Total Allocation	7424.2	4860.1	1876.9	625.7		14786.9
Sanctioned amount						
2014-15	287.5	440.7	89	23.8	18.6	859.5
2015-16	225.3	797.2	77	48.9	0.0	1079
2016-17	951.9	952.5	217.2	44.5	0.0	2166.1
2017-18	640.3	620.1	100.1	42.1	0.0	1402.7
Total	**2105**	**2810**	**414**	**159.3**	**18.6**	**5507.4**

The maximum allocation is in SWM followed by IHHL and IEC. There has been a higher emphasis on IEC as compared to the previous programmes. Studies have highlighted that the SBM has indeed contributed towards a cleaner India. (Suthar et al, 2019[35])

With the target of construction of 66.42 lakh IHHLs, the SBM (U) has achieved 57.63 lakh IHHLs, 4.81 lakh community toilets (CTs), and construction of 2.52 lakh public toilet (PT) seats; and 75,935 wards with door-to-door collection and scientific management of municipal solid waste (MSW). The progress in IHHL implementation varies from State-to-State as presented in Figure 9.

The priority accorded to SBM to get the states for new toilet technologies, Behavioural Change Campaigns (BCC) and greater public awareness are the major initiatives taken up by the MoHUA. Other initiatives in the urban areas such as the AMRUT[36] and Smart City closely associated with SBM have provided a boost to the sanitation sector in the recent years.

To accelerate the envisioned progress, SBM had clearly indicated the role of NGOs and corporate sector in urban areas. Though the role of NGOs in urban sanitation has had a long history, it was for the first time that the involvement of CSOs and NGOs were encouraged within the SBM(U) guidelines.

[33] http://prsindia.org/parliamenttrack/budgets/demand-grants-analysis-housing-and-urban-affairs last accessed on January 3, 2020

[34] Sama Khan, *Swachh Bharat* Mission (Urban): Need VS. Planning, CPR India, 2018.

[35] Suthar et. al., Study on the perception of SBA and attitude towardss cleanliness among the residents of Urban Jodhpur. J Family Med Prim Care 2019;8:3136-9

[36] AMRUT Mission Statement and Guidelines, June, 2015

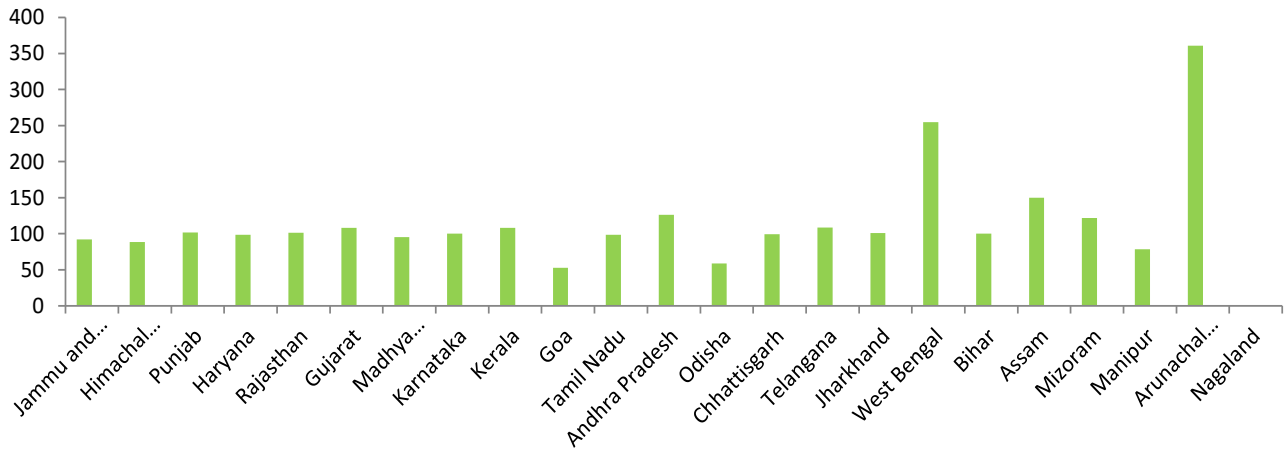

Figure 9: Status of IHHL implementation in percentage

Source: http://swachhbharaturban.gov.in/dashboard/?id=rrxo4z4zz1xa2hp2 last accessed on May 6, 2019

Box-1: *Swachh Survekshan*

The *Swachh Survekshan* (SS), a survey of ULBs was first conducted by SBM (U) of MoHUA in 2016 (similar to the City Sanitation Ranking study being conducted by MoUD since 2010) with the objective of enhancing competition among municipal corporations and ULBs on sanitation and cleanliness. In 2016, a total of 73 cities with population above 10 lakh were ranked; this included 22 State capitals where Mysuru had topped the list of the cleanest cities, followed by Chandigarh and Tiruchirappalli. This has been a very progressive step towards impact assessment of SBM in terms of enhanced efforts to improve sanitation, reorientation of attitudes of ULBs and citizens, and improvement on ground. SS 2019 covered 4,237 ULBs from all States in the country except West Bengal. The introduction of two new certifications namely, ODF+, ODF++[37], and STAR rating of garbage-free cities has been a step ahead for the measurement of sustainability of the initiatives as well as achievement of complete sanitation value chain. As per the SS 2019, out of 2900 ODF certified ULBs, 544 have achieved ODF+ or ODF++ status.

A total of 4,237 ULBs participated in the SS, 2019 where cities were ranked into six different categories based on population size. The city of Indore (in the population category of more than one lakh) was positioned First in 2017, 2018, and 2019 as against its 25th rank in 2016. Indore was also declared as ODF++ in addition to Five Star rating of garbage free city. The SS rankings have helped cities to compete and achieve better sanitation standards by synergising all the efforts, resources, and stakeholders towards making their respective cities clean. This is evident from the case of Ambikapur Municipal Corporation that bagged the Second position in 2019, as against 15th and 11thposition in 2017 and 2018, respectively. Ambikapur Municipal Corporation was also declared ODF++ and rated Five Star for garbage free city. Similarly, the city of Mysuru regained its glory in terms of one of the cleanest Indian cities in SS 2019 bagging the Third position by active citizen engagement[38].Thus, the *Swachh Survekshan*'s larger objective (to encourage citizen's participation, increase city`s capacity capacities for sustainable ODF, and sanitation for collective action in contributing towards SBM [U]),has been met with the case studies and the success stories highlighting strong political will, effective planning and enforcement, multi-stakeholder partnerships, inclusive solutions, and healthy competition towards achieving the goals of SBM (U).

[37] Cities and towns that have already achieved Open-Defecation Free (ODF) status as per the ODF protocol prescribed by the Ministry of Housing and Urban Affairs (MoHUA) can work towards ensuring sustainability of the ODF status to ensure proper maintenance of toilet.

Facilities hereby referred to as SBM ODF+, and safe collection, conveyance, treatment and disposal of all faecal sludge and sewage, hereby referred to as SBM ODF++, inorder to achieve safe sustainable sanitation for all.

[38] https://swachhsurvekshan2019.org/Images/SS2019%20Report.pdf last accessed on January 3, 2020

3.2 Issues and Challenges in Urban Sanitation Sector

While the sanitation sector in India has made remarkable gains in achieving the goals of ODF status in majority of the urban areas, there are several issues and challenges that necessitate immediate attention for the accomplishment of the environmental and health benefits of safe sanitation. Although, the NUSP aimed at addressing many of these, the results were negligible. The SS highlighted the success of several cities with increased toilet constructions and their usage. Despite the progress, several issues related to rapid urbanisation pose serious concern, calling attention towards the long-term solution. The increase in physical structures under the SBM and an ever-increasing urban population pose a constant challenge in sustaining the progress made. These are elaborated below:

1. Rapid urbanisation and need for a policy for urbanising areas such as the census towns and *Nagar Panchayats*.
2. Inadequate maintenance.
3. Ineffective management of faecal waste.
4. Rising groundwater contamination.
5. Over-dependence on centralized waste water management.
6. Maintenance and upgradation of STP/Waste treatment facilities.
7. Need for capacity building of officials.
8. Management and accountability by ULB officials.
9. Climate proofing of sanitation infrastructure.
10. Non-inclusion of urban poor in decision making.
11. Gender considerations.

3.2.1 Rapid Urbanisation

India is urbanising at a rapid pace with half the population projected to be urbanised by 2030. This poses an immense stress on urban water supply and sanitation infrastructure with rapid increase in peri-urban slum population[39], thereby creating challenges. Rising urbanisation as well as increase in individual household toilets pose further stress on the urban water supply. While almost 89% of urban areas in the country were found to have access to water for use in toilets, there are wide discrepancies between States as well as cities (NSSO, 2016). The increasing threats of water scarcity already visible in several metro cities and small urban towns pose the risk of toilets becoming dysfunctional. Besides, rapid urbanisation poses several challenges for ever growing peri-urban areas (regions expanding beyond municipal boundaries) with complex sanitation related issues. These areas lack water and sanitation services with poor infrastructure and in several casesare vulnerable to the negative impacts from waste water and solid waste disposal from nearby urban locations. Specific policies to address this issue are lacking.

3.2.2 Inadequate Maintenance

With 61,14,402[40] toilets constructed in the urban areas since 2014, and a constant rise in demand for more toilets (to meet the needs of the ever-rising urban population) create the risk of slippage and poor maintenance, thereby challenging the ODF declared urban regions. SBM has particularly focused on covering slums stating the benefits to be delinked with tenure status (which includes non-notified slums as beneficiaries). A total of about 5,52,692 public and community toilets in slums have been constructed under the SBM, yet several studies have drawn attention towards the gaps in coverage, inadequate management and use of latrines in urban slums (Patel, 2018[41], Mohanty, 2019[42]). Several reports[43] and studies have highlighted that public toilets are not always user-friendly for the reason of its design, management (non-operational during night), expensive, poor maintenance, etc. (Panday, 2019[44]).

[39] Rumi Aijaz, India's peri-urban regions: The need for policy and the challenges of governance, ORF Issue Brief, 2019

[40] http://swachhbharaturban.gov.in/dashboard/(last accessed January 6, 2020)

[41] Patel S, Rethinking Urban Studies Today, Sociological Bulletin67(1) 1–19, Indian Sociological Society, Sage Publications, 2018

[42] Mohanty, P K, Planning and Economics of Cities, Shaping Indias form and future, Sage Publications, New Delhi, 2019

[43] https://www.factchecker.in/110-million-toilets-built-but-claim-that-india-free-of-open-defecation-not-true/AND https://www.financialexpress.com/lifestyle/swachh-bharat-condition-of-public-toilets-continues-to-be-dismal/1692405/last accessed, November 22, 2019

[44] Panday S R Economic and Demographic Analysis of Urban Slum - A Case Study of Mumbai slums" Journal of the Gujarat Research Society, Vol 21, Issue 9, November 2019

3.2.3 Ineffective Management of Faecal Waste

Effective management of faecal waste has been an issue of major concern. Most ULBs lack institutional, financial and staff capacity leading to poor or no faecal sludge management[45]. An assessment study by the Centre for Science and Environment (CSE) suggests that around 5,200 trucks are required every day to transport around 1.2 lakh tons of excreta produced by 720 million people using 144 million household toilets. This report also estimates that around 60% of the human waste is discharged untreated in open water and land. All of these highlight the need for prioritization of FSM[46] in the ongoing Government programmes for enhanced septage treatment and management.

3.2.4 Rising Ground Water Contamination

Growing urban sprawls and rise in peri-urban areas pose specific issues of concern, one of the major issues being groundwater contamination from domestic sewage that is not safely disposed. Peri-urban areas are dependent on groundwater as the primary source of domestic water supply and on-site sanitation systems as the primary method for disposal of human excreta which directly contaminates groundwater (Biswas and Jamwal, 2017[47]). Several other studies have highlighted that there is a strong nexus between sanitation and groundwater quality in urban areas and therefore, a holistic approach to have an safe sanitation management is needed (Bhallamudi et al, 2019[48], Prasad and Ray, 2019[49]). Besides, the households in peri-urban areas prefer simple soak pits over septic tanks due to the lower cost of investment, and also due to the expectation of the households to be connected to sewer lines in near future (Prasad and Ray, 2019[50]). Studies have found that high incidence of groundwater contamination causes health problems to the population which depends on it as the prime water source for domestic use and consumption.

3.2.5 Over Dependence on Centralized Waste Water Management

According to the NITI Aayog, approximately 33% of urban wastewater is treated in India, and a very small portion of this is reused. Furthermore, the CPCB of India estimated (2017) that of the total 135 litres per capita per day (LPCD) of water supplied in urban areas, 85 LPCD goes back in the form of sewage, which could be reused if planned efficiently. Wastewater reuse should be promoted in tandem with the efforts of the MoJS and MoHUA, which aims to provide taps to every household. This would promote a circular economy, water use efficiency and also ensuring financial viability and sustainability of water utilities.

There has been an increase in availability of sanitation facility to above 91% of urban population. However, inadequate sewerage network is a major issue. Only about 31% of sewage is treated currently and around 70% of sewage and almost all of the septage generated by an average Indian city is disposed of untreated into open drains and peri-urban fields. There is increase in sewerage network, but the rate of urbanisation outpaces the implementation of sewerage network and waste water treatment. Decentralized waste water treatment facilities for blackwater (wastewater from toilets) and greywater (wastewater from sinks, dishwashers, bathtubs, and washing machines) are a good option. But these options demand large financial investments as well as adequate regulations for management and monitoring the same.

3.2.6 Maintenance and Upgradation of STP/ Waste Treatment Facilities

Out of the 900 STPs in the country, less than 50% meet the discharge standards, highlighting inappropriate technology of STPs. There exists inadequate STP/Waste treatment facilities and lack of monitoring sanitation waste and deficits in connectivity, repairs, and operation. Increased urbanisation poses the need for building

[45] https://www.researchgate.net/profile/Doulaye_Kone/publication/288555040_A_Rapid_Assessment_of_Septage_Management_in_Asia_Policies_and_Practices_in_India_Indonesia_Malaysia_the_Philippines_Sri_Lanka_Thailand_and_Vietnam/links/56820bf908aebccc4e0bf2b1.pdf

[46] Sarkar S K., Tulsyan Ankit, Bharat G.K., Discussion Paper: FSM in Urban India-Policies, Practices and Possibilities, TERI University, 2016.

[47] https://www.epw.in/journal/2017/20/commentary/swachh-bharat-mission.html (Biswas and Jamwal (EPW, LII(20): 18-20 · May 2017), last accessed on January 22, 2020

[48] Bhallamudi et al. Nexus between sanitation and groundwater quality: case study from a hard rock region in India. Journal of Water, Sanitation and Hygiene for Development (2019) 9 (4): 703–713.

[49] Prasad and Ray, When the pits fill up: (in)visible flows of waste in urban India. Journal of Water, Sanitation and Hygiene for Development (2019) 9 (2): 338–347.

[50] ibid

more treatment facilities and enforcing safe disposal related regulations, safe collection of faecal sludge and monitoring. There is an urgent need for maintenance and upgradation of STPs and water treatment facilities and monitoring of sanitation wastes. With the rise in household toilets constructed, there is a need for building more treatment facilities with enhanced technology.

3.2.7 Need for Capacity Building of Officials

Meeting the sanitation goals require a wide range of measures, including consolidation of policy reforms, capacity building of the sector, participatory, and demand-responsive approaches. The Government on its part should ensure that public funds are allocated principally for the promotion and stimulation of demand generation for sanitation. There is also a need for capacity building of communities, SHGs, ULBs, CSOs, NGOs and implementing agencies in O&M of toilets, sustainability aspects of sanitation, and scaling of sanitation usages in the urban slums and peri-urban areas.

3.2.8 Management and Accountability by ULB Officials

There needs to be an autonomous organization at the Central and State levels to plan, coordinate and manage all water, sanitation, and waste management infrastructure and services. This organisation can have stable management and all the necessary stakeholders with clear accountability and the required skills on board to do its job effectively. At the city or district level, the utilities can be set up with a dedicated team whose only job is to supervise water, sanitation, and waste management programmes and services, and the recruitment of this team must be prioritised. Most of the ULBs are under-staffed and therefore, their performance is not up to the mark. Investments and policies alone cannot solve the problems. There needs to be an accountability of officials in managing the sector efficiently.

3.2.9 Climate Proofing of Sanitation Infrastructure

Climate change poses a great risk to water and sanitation services, especially in urban areas due to the higher risks of floods, water scarcity due to declined rainfall, rising demand for water, and changes in water quality that has a direct impact on sanitation including damage and impact on the use of toilets. The changing climate is expected to further deteriorate the existing water and sanitation infrastructure. Extreme events such as floods can damage septic tanks and sewerage systems, resulting in contamination of groundwater and increasing public health risks[51]. With rapid urbanisation, the issues of discharge of sewage will increase, thereby compounding the problem arising from climate change. Socio-economic tools, such as disseminating early warnings for climate hazards and marketing alternative technologies would also help sustain safe sanitation practices. Failure to achieve climate change resilience in water supply and sanitation will have serious public health consequences.

3.2.10 Non-inclusion of Urban Poor in Decision Making

Urban poor are not always included in implementation and management of sustainable sanitation. Rising urbanisation includes rise in migration of lower economic groups to urban areas to live in slums. A study by Asian Development Bank (ADB) has pointed out the non-inclusion of poor in sanitation planning and policies to be one of the major causes of failure of most sanitation policies (ADB, 2018[52]).

3.2.11 Gender Considerations

The SBM policy framework in the urban areas has not explicitly highlighted women's sanitation needs and issues, especially when compared with SBM-Grameen (Koonan, 2019[53]) which has reflected in the utilization of sanitation facilities by women and adolescent girls (Ratho, 2018[54], Kayser et al, 2019[55]).

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[51] Bharat, G., India needs climate-resilient sanitation tech, Sci Dev Net, 2014

[52] https://www.adb.org/documents/leading-factors-success-and-failure-asian-development-bank-urban-sanitation-projects (ADB, June 2018), last accessed on January 22, 2020

[53] Koonan, Sanitation Interventions in India: Gender Myopia and Implications for Gender Equality. India Journal of Gender Studies, 2019.

[54] https://www.orfonline.org/expert-speak/toilets-needed-to-bridge-gender-disparity-in-indias-urban-workforce-45034/ last accessed on January 22, 2020

[55] Kayser et al, Water, sanitation and hygiene: measuring gender equality and empowerment. Bulletin of WHO, 2019

4. LINKAGES BETWEEN SDG 6 AND OTHER SDGs IN THE INDIAN CONTEXT

The NITI Aayog, an apex-level body under the Prime Minister is entrusted with the task of catalyzing policy planning, and acts as the nodal agency to provide a roadmap for ensuring greater coordination among Government departments and other agencies. It has mapped all the central ministries, centrally sponsored/ central sector schemes, and other Government initiatives and its relevance to the respective SDGs at a preliminary level, in the expectation that this will trigger the process for better alignment of schemes and strategies with national goals (Figure-10). Consequently, several States have conducted similar mapping of their departments and schemes/programmes. Many States have set up SDG cells or 'Centres of Excellence' in order to coordinate SDG implementation[56]. NITI Aayog has constituted a Task Force with participation by Central and State Ministries for regular review of SDG implementation in the country[57]. NITI Aayog is being apprised by the States on the progress under priority indicators as well as related schemes. NITI Aayog has selected 62 priority indicators[58] for regular monitoring and the two indicators for monitoring SDG 6 are: access to potable water and sanitary toilets (Urban/Rural)[59].

Till date, 23 States and UTs have prepared their Vision documents that are based on the SDGs. A few of the States have postulated strategies and action plans to realise their vision in a time-bound manner. The articulation of vision has led to the convergence of complementary programme components in light of the interconnectedness of SDG targets. This '**whole-of-government**' approach to visioning has now been extended by several State Governments to create interdepartmental mechanisms to effectively guide the implementation phase. These initial attempts on taking a whole-of-government approach have focused on ensuring horizontal coherence across the executive arm of the Government. This would benefit from institutionalising some mechanisms for involving all relevant sections of the Government at all levels, the private sector, think tanks, CSOs and community representatives in ensuring sustainable development. There is also a need to ensure a vertical coherence – deriving from a bottom-up approach across the country. Box-2 has further details. This approach[60] would also benefit from a deeper understanding of interactions and interconnectedness between the SDGs–the trade-offs (negative) and the spin-offs (co-benefits).

The Ministry of Statistics and Programme Implementation (MoSPI) has developed a measurement framework for tracking/monitoring the progress of nationally defined SDGs and is placed in the public domain for wider consultation[61]. In order to prioritize uptake of a comprehensive 'complete sanitation' approach in policies, to achieve the interlinkages of SDGs, it is essential to upgrade the existing National Indicator Framework and the State Indicator Frameworks for including end-to-end sanitation priorities and measurable technological interventions.

SDG 6 aims not only to expand access to basic water and sanitation services but also to close the gaps in service quality, with the intention of long-term sustainability. This means not only providing toilets access to rural and urban communities, but also making sure that the toilets are usable and used by all members of the households. The targets within this goal are closely linked to one another and to the other SDGs. Some of the SDGs are enabled by efforts to achieve the targets of sanitation component of SDG 6, while some of the SDGs enable the targets of sanitation component of SDG 6. Under the 'business-as-usual' scenario, most of the SDGs have

[56] India and Sustainable Development Goals: The Way Forward, Research and Information Systems for Developing Countries, 2016.

[57] https://niti.gov.in/writereaddata/files/SDGs%20V22-Mapping%20August%202017-VERIFIED-Uploaded.pdf (SDGs Draft Mapping, August 2017), last accessed on January 22, 2020

[58] Localizing SDGs: Early lessons from India, NITI Aayog-UN, 2019

[59] https://niti.gov.in/writereaddata/files/NITI-Aayog-SDG-Presentation-to-States.pdf (NITI Aayog presentation to States on SDGs, 23.01.2018-13.02.2018), last accessed on January 22, 2020

[60] Localizing SDGs: Early lessons from India, NITI Aayog-UN, 2019

[61] Draft National Indicator Framework for Sustainable Development Goals, Ministry of Statistics and Programme Implementation (MoSPI), 8 March 2017.

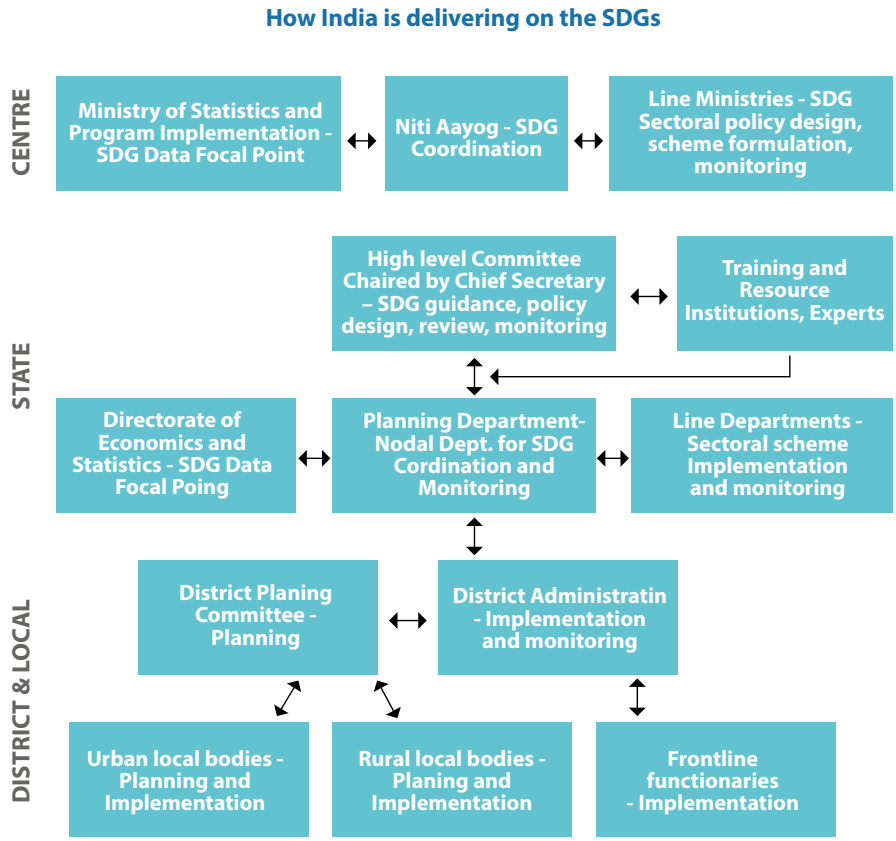

Figure 10: How India is delivering on the SDGs

(Source: NITI Aayog-UN Report, Localizing SDGs-Early lessons from India, 2019)

positive interlinkages with SDG 6, but some targets within the other SDGs could have potential conflict and involve trade-offs with SDG 6, which must be recognized and optimized for implementation. For example, increasing water and sanitation access helps in poverty reduction and has positive health and educational outcomes. It also supports the targets of gender equity, productivity, among others. However, it could have negative impacts on ambient water quality by means of faulty septic tanks, water availability by means of faecal coliform in potable water, and ecosystems by means of illegal dumping of faecal sludge in water bodies.

The targets related to economic productivity, growth, and urbanisation that do not explicitly mention sustainable management of natural resources must be implemented in an integrated manner with the other targets in the same goals, as well as across sectors, to avoid any potential conflict with targets on sanitation. Table 5 summarises the inter-relationship between different targets with that of SDG 6 and the synergies between SDG 6 and other SDGs.

Ensuring availability and sustainable management of water and sanitation for all, enhances different facets of human well-being, environmental management, and economic and societal growth. Thus, it is widely understood that achieving SDG 6 is essential for progress of all the other SDGs and vice versa.

The contribution of SDG 6.2 towards poverty, nutrition, health, and well-being has a direct positive implication on SDGs 1, 2, and 3. While water as a driver of economic growth is well known, the job creation and economic growth by improvement in sanitation is often underestimated. A direct contribution to SDG 8 arrives on account of job creation from investments in the sanitation economy and the ripple effect of positive growth on the economy. Improved waste water management can lead to generation of renewable energy, thus contributing to SDG 7. While the sewage sludge is used for energy generation, the treated waste water can be used for agricultural production contributing towards SDG 6.3, 6.5, 6.6, and SDG 11 and 12. Thus, SDG 6.2 not only has

BOX-2: Localizing and aligning SDGs in States towards achieving the sanitation target

The 17 SDGs and 169 targets of the 2030 Agenda for Sustainable Development (SD) needs to be achieved at global, national and subnational levels. Localisation primarily addresses the subnational contexts in the achievement of the SDGs. Localisation relates to how States and local governments can support the achievement of the SDGs through bottom-up initiatives, and also how the SDGs can provide a roadmap for strengthening the local development policies.

Evidently, the States and UTs are the primary players and contributors in ensuring the success of the 2030 Agenda for SD in India. NITI Aayog periodically reviews SDG adoption, and works with States and UTs for meeting the goals. Key efforts made by some of the Indian States in spearheading and aligning to achieve the SDG sanitation target are summarised below:

- In **Jharkhand**, draft modules on health, water and sanitation (along with those focusing on other SD issues) for orientation of officials of PRIs have been prepared, all of which have dedicated sections on SDGs. Various training programmes have been conducted by State Training Institutions in this regard. Also, in order to address the challenge of malnutrition in Jharkhand, a campaign called *Poshan Abhiyaan* (nutrition campaign) has been implemented in line with the National Nutrition Mission and it aims at the thematic convergence of nutrition with related areas including hygiene, water and sanitation.
- **Telangana** is implementing a variety of schemes for reaching out to the vulnerable sections of the society (Scheduled Castes, Scheduled Tribe, Minorities, and underprivileged women), so that 'no one is left behind'. One of the major thrusts of these schemes is on health, and water and sanitation.
- *Nava Keralam Karma Padhathi* is a flagship programme of **Kerala** launched in November 2016, and is being implemented in coordination with the local self-governments. It relies on an inter-sectoral approach focusing on six key sectors (health, education, agriculture, sanitation, water resources, and housing). *Nava Keralam* entails four Missions, out of which the *Haritha Keralam* Mission has three Sub-Missions, including the Sanitation-Waste Management Mission. The latter focuses on achieving better sanitation targets for the State aligning with the related SDG.
- The State of **Uttarakhand** has made amendments to the *Gram Panchayat* Development Plan (GPDP) guidelines in order to integrate SDGs in GPDPs. A pool of master trainers for imparting training to PRIs for alignment of GPDP with the SDGs has been created. These master trainers conduct sessions for PRI members to inculcate strategising and planning around SDGs in the GPDPs. One of the main focus areas for alignment of SDGs in GPDP is on sanitation practices at the Gram Panchayat Level.
- The Government of **Bihar** is implementing a number of converging programmes to address all SDGs. An umbrella programme titled *7 Nischay* (or 7 resolves) addresses challenges in multiple sectors following an inter-sectoral approach. This programme is being implemented with a holistic vision of achieving various sustainable development targets including the provision of basic services such as water supply, drains and toilets.

interlinkage with several other goals but also has intra-linkages within SDG 6 associating sanitation with water quality, water quantity and water management, water for agriculture, and relevant ecosystem management.

The progress in sanitation and specifically the achievement of SDG 6.2, including the progress with several aspects of sanitation, both household access and improvement in school sanitation including gender-segregated toilets have an impact on access to education thereby contributing towards gender equity impacting SDG 4 and 5.

As highlighted earlier, there has been a considerable progress in SDG 6 in the country with dedicated efforts and policies for achieving universal access to adequate and equitable sanitation. While the proportion of global population using at least basic sanitation services increased from 59% in 2000 to 68% in 2015, in India, it increased from 70% to 93% of total population. Rural areas made a drastic improvement from 74% to 91%, while in urban areas the increase has been 91% to 96% (UNICEF & WHO, 2019). This means that 486 million people gained access to basic sanitation services in India between

2000 and 2019, which would have higher demand for water for sanitation and increased need for sanitation waste management.

The period between 2000 and 2016 also witnessed a remarkable progress in sanitation in schools. JMP estimated that almost all the schools in India had at least some basic type of sanitation facility in 2016, whereas a decade back, more than 50% schools had no sanitation facility at all. This has also witnessed an increase in the number of school-going children[62]. Hygiene and handwashing practices have also improved in the country with 60% population (80% and 49% in urban and rural areas, respectively) with basic hand washing facilities at home. This directly has an impact on SDG 4 and 5. All these factors put a further stress on the demand for water and requirement for waste water treatment.

With all the achievements in sanitation sector, there still exists a gap in India's sewage scenario, with almost 70% of urban India's sewage being left untreated. Direct disposal of untreated waste water into the water bodies threatens water quality and further adds to the already-existing acute water stress in many parts of the country. Waste water being a critical component of water resource management calls for policy attention as this aspect of SDG 6.2 directly contributes to several SDGs including SDG 6.3, 6.5, 6.6, and SDG 11 & 12.

[62] Drinking water, sanitation and hygiene in schools: global baseline report 2018. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018.

Table 5: SDG targets that enable and hinder SDG 6

S. No.	SDG 6 enabling other SDGs	SDG 6 enabled by other SDGs	SDG 6 impacted by programmes targeting other SDGs
1	**Target 6.1 *(Safe and affordable drinking water)***		
	Target 1.4 (*Access to basic services*) Target 2.2 *End malnutrition, stunting and wasting in children*) Target 3.2 (*Reduce neo-natal mortality*) Target 3.3(*End water-borne and other diseases*) Target 3.9 (*Reduce deaths due to polluted water and other pollutions*) Target 4.2 (*Ensure that all girls and boys have access to quality education*). Target 4 A (*Build and upgrade education facility which is gender-sensitive*). Target 5.1(*End gender discrimination*). Target 16.1(*Reduce violence*). Target 16.2 (*End exploitation of children*).	Target 8.3 (*Promote development-oriented policies that support productive activities, decent job-creation*). Target 9.1(*Develop resilient infrastructure*). Target 11.1 (*Safe, affordable housing and basic services to all*). Target 13.1 (*Strengthen resilience and adaptation to climate related hazards*).	Target 2.3 (*Double agricultural productivity*) Target 2.4 (*Ensure resilient agriculture*). Target 7.1 (*Universal access to affordable, reliable, and modern energy services*) Target 7.2 (*Increase the share of renewable energy*).
2	**Target 6.2 *(End open-defecation and provide access to sanitation and hygiene)***		
	Target 1.4 (*Access to basic services*). Target 2.2 (*End malnutrition, stunting, and wasting in children*) Target 3.2 (*Reduce neo-natal mortality*). Target 3.3(*End water-borne and other diseases*).	Target 8.3 (*Promote development-oriented policies that support productive activities and decent job-creation*).	Target 11.1 (*Safe affordable housing and basic services to all*).

S. No.	SDG 6 enabling other SDGs	SDG 6 enabled by other SDGs	SDG 6 impacted by programmes targeting other SDGs
	Target 3.9 (*Reduce deaths due to polluted water and other pollutions*). TTarget 4.2 (*Ensure that all the girls and the boys have access to quality education*). Target 4 A (*Build and upgrade education facility which is gender-sensitive*). Target 5.1(*End gender discrimination*). Target 5.2 (*Eliminate all forms of violence against women and girls*). Target 16.1(*Reduce violence*)	Target 9.1(*Develop resilient infrastructure*). Target 13.1 (*Strengthen resilience and adaptation to Climate related hazards*).	
3	**Target 6.3 *(Improve water quality, wastewater treatment, and safe reuse)***		
	Target 3.2 (*Reduce neo-natal mortality*). Target 3.3(End water-borne and other diseases). Target 3.9 (Reduce deaths due to polluted water and other pollutions). Target 8.3 (*Promote development-oriented policies that support productive activities and decent job-creation*). Target 8.9 (*Promote sustainable tourism that promotes local culture*) Target 14.1(*Reduce marine pollution from land-based activities*). Target 14.2 (*Protect marine and coastal ecosystem*). Target 15.1 (*Ensure conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystem and their services*).	Target 11.6 (*Reduce per capita impact of poor air quality, municipal, and other waste management*). Target 12.2 (*Efficient use of natural resources*). Target 12.4 (*Environmentally sound management of wastes for reducing water and other pollution*). Target 12.5 (*Reduce waste generation through prevention, reduction, recycling, and reuse*).	
4	**Target 6.4 *(Increase water-use efficiency and ensure freshwater supply)***		
	Target 9.4 (*Upgrade infrastructure for resource efficiency*).	Target 12.2 (*Efficient use of natural resources*).	Target 2.3 (*Double the agricultural income*). Target 2.4 (*Ensure sustainable and resilient agriculture*). Target 7.1 (*Universal access to affordable, reliable, and modern energy services*). Target 7.2 (*Increase the share of renewable energy*).

S. No.	SDG 6 enabling other SDGs	SDG 6 enabled by other SDGs	SDG 6 impacted by programmes targeting other SDGs
5	**Target 6.5 (*Implement Integrated Water Resource Management*)**		
	Target 11.1 (*Access to adequate housing and basic services for all*). Target 11.3 (*Inclusive and sustainable urbanisation*). Target 15.1 (*Ensure conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystem and their services*). Target 15.2 (*Promote sustainable management of forestation and increase of afforestation*). Target 15.3 (*Combat desertification, drought, and flood*). Target 15.4 (*Ensure conservation of mountain ecosystem*).	Target 12.2(*Efficient use of natural resources*) Target 12.4 (*Environmentally sound management of chemicals and all wastes and release to water*)Target 12.5 (*Reduce waste generation through preventions, reduction, recycle, and reuse*) Target 13.1 (*Strengthen climate adaptability and resilience*).	
6	**Target 6.6 (*Protect and restore water-related ecosystem*)**		
	Target 8.9 (*Promote sustainable tourism that promotes local culture*). Target 14.2 (*Restoration of marine ecosystem*). Target 15.1 (*Conservation, restoration, and sustainable use of freshwater ecosystem*). Target 15.2 (*Promote sustainable management of forestation and increase of afforestation*). Target 15.3 (*Combat desertification, drought and flood*). Target 15.4 (*Ensure conservation of mountain ecosystem*).	Target 13.1 *Strengthen climate adaptability and resilience*).	Target 2.3 (*Double the agricultural income*). Target 2.4 (*Ensure sustainable and resilient agriculture*). Target 7.1 (*Universal access to affordable, reliable and modern energy services*). Target 7.2 (*Increase the share of renewable energy*). Target 9.1 (*Infrastructure for all*). Target 9.3 (*Increase in small-scale industries*).
7	**Target 6.A (*Expand water and sanitation support to developing countries*)**		
	Target 10.6 (*Enhanced representation and voice from developing countries for decision making at global platform*). Target 15.1(*Conservation, restoration, and sustainable use of freshwater ecosystem*).		
8	**Target 6.B (*Support local engagement in water and sanitation management*)**		
	Target 16.7 (*Ensure responsive, inclusive, participatory, and representative decision-making at all levels*).		

5. RECOMMENDATIONS FOR RURAL SANITATION SECTOR

The sustainability of interventions requires continuous efforts to ensure safe sanitation for all. The recommendations for rural sanitation are given below.:

Regulatory

i. The ODF verification guidelines should be followed meticulously and only if all the criteria are met, then the ODF status should be granted. Any deviation should be taken as non-compliance and the ODF status should be suspended or withdrawn. Third party verification and transparent reporting must be a part of the system, and all the stakeholders (especially those belonging to verification team), must be trained and facilitated through access to data as well as operational aspects of the verification process. An ODF sustainability plan should be a pre-requisite for the ODF certification process.

ii. To improve the credibility of the ODF data, regular periodical surveys by trained personnel needs to be conducted. The ODF status should be valid only for a specific period (say 5 years), after which it should be subjected to sample verification before renewal. It is best if the renewal period for the districts is staggered so that one-fifth of the districts in each State comes up for renewal each year. The guidelines need to be expanded with changing time and be made more credible. The role for Gram Sabha, SHGs, NGOs, and CSOs should be laid down categorically. Social audit should be mandatory for both construction and renewal.

Institutional

iii. Dysfunctional toilets have been one of the key reasons for slippage from ODF; there is a need to assess for non-usability and appropriate actions should be taken accordingly. For example, the slippage seen in usable toilets in schools and communities need to be investigated and rectified. *Swachh Bharat Kosh* funds have been allocated for repair of dysfunctional toilets; however out of the INR 399.86 crores that have been released, only INR 129.41 crores have been utilised.[63] There is a clear need to prioritise effective usage of these funds through conducting annual surveys to locate dysfunctional toilets in schools and ensuring their repair and creating a business model for technical support (not necessarily free/subsidised) to maintain and repair toilets should be prioritised.

iv. Efforts to develop human resources for sanitation are required through the sanitation chain such as training masons-cum-plumbers, personnel for designing and constructing new sanitation infrastructure, O&M, community mobilisation, sanitation, and hygiene promotion. Additionally, there is a need to continuously improve the skill sets of personnel involved in the verification process. Apart from training institutes, NGOs and CSOs should play a key role in developing human resources.

v. In order to manage WASH facilities created under SBM, it is imperative to ensure buy-in from the community. From time-to-time, campaigns need to be designed for awareness generation of communities. Sustained and concerted efforts are required to ensure holistic, safe, and sustainable sanitation in India. Continuous engagement with communities is necessary to create awareness, change old habits, prevent slippage, and create ownership of resources created. This calls for sustained efforts by all the stakeholders including governmental organizations, NGOs, CSOs, and local SHGs.

vi. It is also essential for the *Panchayat* to engage/ contract a person for maintenance and repair of Community Sanitary Complexes (CSCs) at the time of construction (rather than look for a person after the toilet becomes dysfunctional).

Management

vii. Behavioural change is a key component towards achieving safe sanitation. Currently, many

[63] Standing Committee on Rural Development, Report 51, 2017-18

households with functional toilets use it as a store room. In many others, few members still practise OD. Sustained behaviour change campaigns at the community levels as well as household levels can bring about a change in the mindset of people. For this purpose, it is also essential to first understand the reason why old habits persist, and address the issues. Communities should be involved in decision-making, implementation and upkeep of sanitation facilities. This builds on the behavioural nudge approach of handing over responsibility to the communities. Targeted nudges may be considered as per gender, age, society for social behaviour change.

viii. There is a need to build capacity for the safe management of faecal waste generated from onsite containment systems. Opportunities for FSM[64] services should be identified, with due consideration to the economy of scale to ensure sustainability of services. There are exemplary case studies such as the Devanahalli in Karnataka wherein India's first-of-its-kind Faecal Sludge Treatment Plant (FSTP) was installed in 2015 for safe treatment and disposal of sludge (collected in septic tanks and pit latrines). Such initiatives must be tailored to suit the needs of different GPs.

ix. Recognizing that septic tanks are one of the key technologies to handle faecal waste, personnel constructing septic tanks have to be made aware of the Indian standard code of practice for installation of septic tanks (IS: 2470) - BIS (1986) and implemented by trained and certified masons.

x. Community Sanitary Complexes (CSCs) are constructed where the space for IHHL is not available and *Gram Panchayats* are responsible for its O&M. As availability of water in toilets in some areas is a key constraint for usage, community toilets/CSCs with proper infrastructure and maintenance, which could cater to the population facing this issue, should be explored.

xi. The Government promotes the construction of twin pit toilets (owing to its advantages like low-cost, drying of one pit when the other is in use, easy-to-build, low-water consumption, etc.) and recommends an average pit size of 180 ft^3. However, the States (as encouraged by the Ministry) must look at site-specific and need-based technological solutions for toilets pertaining to choices for different pit types and sizes. It is best if the State gets the recommendations of a competent technical agency for the different site categories.

xii. There is a need to emphasize on O&M of toilets, prioritise the repair/retrofit/modify of defective sanitation technology to ensure that there is safe management of generated waste. Adequate cleaning of drains to prevent waterlogging as well as covering of open drains needs to be undertaken. High priority must be placed to develop system to regularise the private service providers emptying the On-site Sewage Systems (OSS) septic tanks.

[64] Verhagen J and Scott P, Safely Managed Sanitation in High-Density Rural Areas: Turning Fecal Sludge into a Resource through Innovative Waste Management, The World Bank, 2019.

6. RECOMMENDATIONS FOR URBAN SANITATION SECTOR

Tremendous growth in urban sanitation since the launch of the SBM in October 2014 demand attention to the challenges posed on account of the progress and its sustenance, in order to achieve safe and improved sanitation in urban India. Despite improvement made in achievement of ODF status in the urban region, there are several areas in the urban sanitation sector that need attention.

The *Nagar Panchayats,* census towns, and urban projects should have prospective planning (rather than retrospective planning) before newly urbanised areas get too dense and it becomes difficult to lay pipes, sewers, and drains[65]. Sanitation plans should consider the projected population growth and urbanisation with continued attention on behavioural change and education to prevent slippages, address water scarcity issues, and plan for water harvesting and conservation, include urban poor in sanitation management, improve waste water management, improve sewerage network and on-site sanitation measures, regularly maintain and upgrade STP/ waste water treatment facilities, and monitor sanitation wastes. Special but differentiated attention is needed for *Nagar Panchayats* and census towns. Most *Nagar Panchayats* do not have the capacity to plan and manage programmes and need special attention. Census towns are technically still part of the rural *Panchayat* system, and a mechanism is needed to ensure that the urban planning perspective is applied to such areas. As such joint mechanisms of the rural and urban administrative systems need to be brought to bear during the transition.

Some of the urban sector specific recommendations are given below:

Regulatory

i. There is a need to develop Faecal Sludge and Septage Management (FSSM) strategy in all the ULBs and roll out relevant action plans. The septic tanks and soak pits are often faulty and not maintained properly; unscientific management and inadequate frequency of cleaning causing unhygienic conditions. The vehicles involved in cleaning and transport of septage are not registered with the ULBs leading to a lack of monitoring mechanism and non-optimum usage of resources. Appropriate regulatory measures towards septage management needs to be taken up. Improved environmental and health monitoring on a regular basis and propagation of sanitation options that are water-saving and less-polluting such as the Ecosan for peri-urban areas are essential.

ii. The current policies do not emphasize or incorporate efforts to reuse treated waste, reduce energy in construction and O&M, promote sustainable materials, and processes. Holistic, integrated, environment-friendly and climate-resilient technological solutions that also support the principles of circular economy must be adopted.

Institutional

iii. There is a need to enhance on-site sanitation and support small-scale sanitation providers including capacity building and assessment of skills of local implementing agencies.

iv. The WASH ecosystem in each of the ULBs developed under the SBM, AMRUT programmes should be harmonized with the stakeholders in each of the ULBs for sustainability of the urban WASH services. There is a need to enhance capacities of ULBs in O&M aspects, for sustaining ODF and gearing towards ODF Plus.

v. Different models of public toilets/community toilets (PT/CTs) have been constructed in ULBs across the country. Upkeep and O&M of these sanitation facilities must be sustainably managed through innovative business models.

vi. Separation of solid and liquid at source (for PT/CTs), local and decentralized treatment of wastewater and reuse are all viable options that can reduce costs and improve the environment.

vii. It is generally observed that the ULBs show

[65] Rumi Aijaz, India's peri-urban regions: The need for policy and the challenges of governance, ORF Issue Brief, 2019

poor response to align private sectors for CSR partnerships for innovations (rural and urban). Each project city has considerable presence of private sector groups, which are influential. The ULBs should consider implementing the innovations identified by ULBs through sustained CSR support. There must be systematic documentation and dissemination of best practices at the State level.

viii. Sewage management needs to be improved through use of modern technology and decentralized treatment/management plants in different locations at all ULBs.

ix. Repair services for urban toilets are as important as for rural toilets. It is important to facilitate the growth of business models for the purpose, and the municipality must take the lead, by training persons under skill training programmes of the Government. To kickstart the commercialization of the maintenance service, the municipality may maintain an area/ward-based list of persons providing services and the rates. A mobile app would be an extremely useful as well as a cost-effective means of coordination. In smaller urban areas, the rates may need to be subsidised, and the State may consider providing a subsidy payable to the service provider after satisfactory repair.

Management

x. Monitoring and measuring the progress, status, and use of latrines at the household level (using spatial data) can provide tremendous insight on the situation in the slums and assist interventions. Under SBM, adequate data and knowledge have been generated. Current efforts should be towards improved data collection and management for effective policy formulations and decision making. A periodic survey in some identified areas may be useful.

xi. In order to ensure continuous engagement of the stakeholders in ULBs, advanced level of trainings and capacity building programmes need to be organised in consultation with the ULBs so that they can effectively monitor the WASH-related activities in their domain.

xii. There is a need for scaling demonstrative effects of safe, effective, and sustainable FSM solutions in the country. There is a huge gap between the collection efficiency of sewerage network in many ULBs and the sewage treatment capacity. This leads to faecal waste entering the environment due to seepage/ leakages from old sewer system and unplanned emptying of private tanks in open grounds/ waterbodies. The entire sanitation value chain needs to be reviewed and re-examined to capture leakages at each level and undertake measures to improve up to the SLBs.

xiii. Different finance options[66] to scale up Government of India's public-private-participation (PPP) promotion as well as improving activities to manage State assets more efficiently and for raising the quality of public services, must be explored.

[66] Mehta, Meera and Mehta, Dinesh, State of Urban Sanitation Report of India, USAID-Coca-Cola-TERI University Report, 2017

7. CONCLUSIONS

The SBM has witnessed unprecedented citizen participation as well as garnered huge political support. The rise in sanitation coverage has supported substantially in moving forward in achievement of SDG, specifically in realizing the goal of access to sanitation facilities. However, there are several issues that highlight the need for attention to realise the targets. The policies and programmes in the sanitation sector in India should buildup on the efforts made so far. The provision of comprehensive, sustainable, and accessible sanitation services to all requires a strong policy and legal framework, which should be periodically reviewed for keeping pace with technologies, aspirations, and the changing needs and challenges of the society. While the SBM has led to significant improvement in the sanitation sector, corresponding progress in sewage and waste water are necessary to realize the SDG targets with respect to sanitation. Sustainable sanitation requires implementation of stronger regulatory mechanism with the support of third-party audits on a six-monthly basis by accredited conformity assessment bodies. Along with a strong regulatory mechanism, there needs to be a stronger enforcement mechanism and stricter implementation of the FSSM policy as well as solid waste management for better sanitation outcomes.

In order to ensure good public health, water, sanitation, and hygiene must be looked at holistically. Sectors and policies should be accordingly harmonised. Sanitation interventions and initiatives require sustained efforts to ensure safe sanitation for all. Sanitation missions cannot predominantly be a Central Government programme with construction targets. State level Annual reports in legislatures can ensure better scrutiny and accountability of initiatives. *Gram Sabha* and Social audit need to be used more effectively. It is also important to measure QoL outcomes for WASH initiatives including reduction in poverty, better health, and education.

Behavioural change is a key component towards achieving safe sanitation. The National, State and City level programmes need to be supplemented and synergised with awareness generation and BCC to deliver results on the ground. These initiatives should be further deepened in the form of responsible behaviour, process and system changes amongst city administrators and citizens (residential, business, and others). Safe sanitation requires a good sub-structure which is not being addressed by the current BCC approaches. Media has the power to bring people together around common cause and objectives, and therefore it should be made to play a more active role in triggering positive change. Specific stakeholders must be involved effectively; for example, sustained involvement of Village Education Committees and Parent Teacher Association may bring about positive behavioural change amongst the entire school community.

Lack of water supply in toilets as well as dysfunctional toilets are the two key reasons for slippage from ODF. The reasons for non-usability of toilets may be assessed and necessary actions should be taken accordingly. It is imperative to form an army of sanitation workers for long-term sustainability of sanitation infrastructure. Skilling the workers must be systematically undertaken by the Municipality/District administration/*Panchayat*. To ensure easy availability and affordability, workable solutions tailored to rural and urban situations must be devised at State level, and the effort must be geared towards making the maintenance service a self-sustaining occupation over time.

Stable and long-term financing and planning is essential for sustaining ODF status. Short-term and one-time planning, without a future investment roadmap will result in poor quality toilets or sewerage infrastructure, which ultimately increases the O&M expenses, resulting in unsustainability of the infrastructure created as well as unsustainability of positive behaviour.

Safely managing faecal sludge is key to achieving Target 6.2 of SDG 6. There is a need to build capacity for the safe management of faecal waste generated from on-site containment systems. Efforts to develop human resources for sanitation management are required throughout the sanitation chain (such as training masons, personnel for designing and constructing new sanitation infrastructure, O&M, community mobilisation, sanitation, and hygiene promotion.) Additionally, there is a need to continuously

improve the skills of personnel involved in the verification process. Apart from training institutes, NGOs and CSOs should play a key role in developing human resources. There should be a training programme for local masons who build and service soak-pits and septic tanks. The training should focus on the improved design of septic tanks, construction and services for effective O&M. Proper remuneration of these workers should be ensured for motivating them.

Special but differentiated attention is needed for *Nagar Panchayats* and Census Towns, which is the population segment showing the highest growth rates. *Nagar Panchayats* are already in the urban sector, but do not have the capacity to plan and manage programmes and need special attention. Census Towns by contrast are technically, still a part of the rural *Panchayat* system, and a mechanism is needed to ensure that the urban planning perspective is applied to such areas. The best way (as intended in the Constitution of India) is to declare census towns as *Nagar Panchayats* after each Census, but there are some incentives available for rural areas, which may prevent the State from doing so till much later. As such joint mechanisms of the rural and urban administrative systems need to be brought together during the transition.

Sewage management needs to be improved through the use of modern technology and decentralized treatment/ management plants in different locations within all ULBs. In order to manage WASH facilities created under SBM over time, it is imperative to ensure buy-in from the community by means of new and existing social media tools for awareness generation. The upkeep and O&M of these infrastructures must be based on innovative ideas and solutions. Poor sanitation has the potential to undo most of the positive impacts generated so far in achieving the targets of SDG6 as well as all other SDGs.

Safe sanitation implies that the entire sanitation chain needs to function in a safe and sustainable manner. Not all parts of this chain can be left solely to households or the private sector. There are a number of important market failures along this chain. Addressing these market failures requires a sustained and long-term involvement of the public sector which implies a significant departure from the current policies.

Localization of SDGs is the way by which States and local governments support the achievement of the SDGs through bottom-up actions, and also, the process by which SDGs provide a framework for the local development policies. Evidently, the States and UTs are the primary players and contributors in ensuring the success of the SDGs in India. Considerable efforts have been made by many of the Indian States in spearheading to achieve the SDG sanitation target. Some of the States are making progress towards aligning it with other SDGs at the State and local administrative levels. This synergy among the various stakeholders including State, District and City Governments, academia, private sector, and CSOs under SBM should be strengthened for achieving better WASH outcomes and SDG targets.

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APPENDIX-1: OBSERVATIONS/RECOMMENDATIONS OF THE "STANDING COMMITTEE ON RURAL DEVELOPMENT" Report 51, 2017-18.

Observations on *Swachh Bharat Mission - Grameen*

(Recommendation 2.1)

- The Committee members are of the view that the dream of Father of the Nation for total sanitation for all and a clean India is still elusive.
- Safe sanitation and cleanliness are most important for physical well-being and a healthy environment of every society. It has a bearing on public and personal hygiene.
- It is highlighted that it is crucial for everyone to understand the positive impact of cleanliness, hygiene, sanitation on the eco-system and also the negative impact such as various diseases that are caused due to poorhygiene
- The Committees are of the view that perfect sanitation makes an 'ideal village'.

Recommendations

1. Sanitation coverage

(Recommendation 2.2)

In view of the percentage of sanitation coverage in the rural areas of the Country (erstwhile the Ministry of Drinking Water and Sanitation (MDWS) have claimed about 84% as on 24th May, 2018), the Committee expressed that the sanitation coverage figures seemed to be more on "Paper" while the actual progress at the ground level is very lethargic. Specific recommendations are as follows:

- A village with 100% household toilets cannot be declared ODF till all the inhabitants start using them.
- Main thrust of the Government should be on the usage of toilets, as mere building of toilets alone is not sufficient for the realization of actual vision of an ODF country.
- They strongly recommended MDWS to bring about a radical transformation in the 'behavioural' aspects of the rural masses by inculcating in them a sense of hygiene and well-being through mass extensive awareness campaigns and other suitable mechanisms, so that the gap in the figures projected and the ground reality may be abridged for the betterment of the country.

2. Sanitation Coverage of Lagging behind States

(Recommendation 2.3)

The Committee found that the sanitation coverage performance of some of the States (Bihar, Uttar Pradesh, Jammu & Kashmir and Odisha, etc.) is very low. They also observed that the efforts made by the Government is incomplete if the issue of awareness generation is left behind in this demand driven programme across the States for a pan-India increase in sanitation coverage.

- The Ministry should pay more attention towards pace of sanitation in the low performing States like Bihar, Uttar Pradesh, Jammu & Kashmir and Odisha on war footing

3. Quality of IHHL under SBM (G)

(Recommendation 2.4)

The Committee Members themselves and through different feedbacks have noted a serious cause of concern that there is 'poor nature of construction and low quality of raw materials being used in the construction of toilets under SBM (G)'. They observed that no amount of infrastructural development under SBM (G) will sustain ODF until and unless the issue of durability and quality of construction of toilets is taken due care of.

- The Ministry was pressed to ensure that quality of raw material used for construction of toilets under SBM (G) is of a good standard and commensurate with the amount being spent as incentive to the beneficiaries without any compromise.

4. Deletion of Defunct Toilets data from the portal

(Recommendation 2.5)

The Committee noted that the inclusion of the number of toilets in the data does not reveal a real picture of ODF

until and unless the "coverage" data and "usable" data in regard to the functional toilets are same.

- To ensure credibility on the ODF data, survey and regular re-survey needs to be done in order to identify and rectify the defunct toilets over a period of time.
- The Committee recommends the Ministry to review its data time to time and delete the number of defunct toilets from the list to have a real picture of constructed and functional toilets in the country.

5. Community Sanitary Complexes (CSCs)

(Recommendation 2.6)

The Committee identified that there are constraints like (water availability, sewer feasibility issues etc.) in constructing individual household latrines. Therefore, the Committee is of the opinion that to ward off such challenges, MDWS should, instead, concentrate on the idea of construction of more CSCs at designated places with proper infrastructure that could cater to large population. The information by the Ministry shows that the progress of construction of CSCs is not very encouraging.

- The Ministry must examine the reasons for such a poor response to the Community Sanitary Complexes keeping in view the issues of maintenance and sustainability of such Complexes also
- Modalities can be devised by the MDWS to provide due incentives to the Gram Panchayats for maintenance of CSCs so that non-sustenance of such complexes do not take place.
- The Committee strongly recommends the Ministry to construct more CSCs along with developing a mechanism of incentivising the GPs for maintenance of such CSCs.

6. Accuracy of Data

(Recommendation 2.7)

The Committee observed that in the past that fall back rate of ODF declared that villages were very high, either due to filing of wrong information regarding attaining of ODF or due to non-sustainability of toilets. Such villages reverted back to open defaecation, thus rendering the entire exercise futile, while on datathey remain ODF.

- The Committee strongly recommends that the Ministry must collect the information on ODF declared villages accurately on continuous basis either through institutional mechanism or through resurvey of these areas.
- Independent flow of such information from the local institutions of people like PRIs may also enhance the accuracy of facts.

7. Water Availability

(Recommendation 2.8)

The Committee noted that the availability of water resource is of utmost importance and mere construction of toilets without water is of no use and wastage of resources. The Committee stated that the priority of Government should not be limited to the construction of infrastructure only but also, be pragmatic enough to give priority to the essential needs for toilet usages.

- The Committee strongly recommend the Ministry to prioritise the provision of water availability along with the construction of toilets under SBM and apprise the Committee of actual figures of toilets constructed having water facilities.

8. Solid and Liquid Waste Management

(Recommendation 2.9)

The Committee noted that besides constructing latrines, bringing behavioural changes and achieving ODF etc., the management of solid and liquid waste in rural areas is also a major challenge of sanitation. The Committee concur that lack of safe disposal of waste will create contamination and will persistently pose a threat to the health and well-being.

- The Committee implores upon MDWS to devise new and effective strategies for yielding better results in terms of solid and liquid waste management associated with the SBM (G).

9. Creation of Job Resources

(Recommendation 2.10)

The Committee believes that there is a huge potential for employment generation associated with this facet of the SBM (G).

- The Committee desires that MDWS formulate new mechanism for pushing through the aim of employment generation under SBM (G) as a part of long-term sustainability of the Yojana.

10. Unspent Balances

The Committee finds that the reason for unspent balance has been inadequate capacity building at grassroot level and existence of revolving funds and leveraging other sources of credit, etc. The Committee feels that there is a need to liquidate the huge unspent balance by strengthening the implementation constraints and strict monitoring.

- The Committee further recommends the Government that if the State Implementing Agencies are not utilizing the normal allocation, then the Central Government may frame out State-specific action plan to liquidate the unspent balance.

(Recommendation 2.11)

11. Release of Central shares

Continuing with the issue of unspent balance getting accrued over a period of time in various States due to plethora of reasons, the Committee has taken a serious view of the modalities of disbursement of installment of Central share to the States. while the pile of unspent balances is increasing.

- The Committee strongly recommends that the installments of Central share be strictly released in accordance with the guidelines of SBM (G) only after ascertaining the veracity of UCs and use of unspent balance within stipulated time frame by the States.

(Recommendation 2.12)

12. Participation of NGOs/Social Organizations

The Committee feels that NGOs could play a vital role in promoting sanitation in rural sector, thereby routing a proper roadmap for the purpose.

- The Committee advised the Government that there is a need to accelerate involvement of all the social workers, corporate sector as well as other entities like NGOs, individuals, social organisations in creating awareness and achieving universal sanitation coverage among the rural masses.

(Recommendation 2.13)

13. Monitoring and Evaluation (M&E) under SBM (G)

The Committee recommended that the existing monitoring mechanism should be further strengthened to achieve the set targets within the prescribed time schedule and also to plug the loopholes detected during inspections/visits in a time-bound manner.

(Recommendation 2.14)

APPENDIX 2: THE NATIONAL ANNUAL RURAL SANITATION SURVEY (NARSS) 2018-19

The NARSS 2018-19 was conducted between November 2018 and February 2019 and covered 92,040 households in 6,136 villages across States and UTs of India. The survey was done by an Independent Verification Agency (IVA) under the World Bank support project to the SBM (G).

As per the survey, it was found that 96.5% of the households in rural India which have access to a toilet used it. The NARSS had reconfirmed the ODF status of 90.7% of villages, which were previously declared and verified as ODF by various districts/States. The key findings of NARSS 2018-19 are as follows:

- 93.1% of households were found to have access to toilets during the survey period (the corresponding figure as per the SBMG MIS in November 2018 was 96%).
- 96.5% of the people who had access to toilets used them.
- 90.7% of villages which were previously declared and verified as ODF were confirmed to be ODF. The remaining villages also had sanitation coverage of about 93%.
- 95.4% of the villages that were surveyed were found to have minimal litter and stagnant water.

APPENDIX 3: NATIONAL SAMPLE SURVEY REPORT (NSSO 2019)

Highlights:

1. **Statement 12:** About 71.3% of the households in the rural areas and about 96.2% of the households in the urban areas had access to latrine. It may be noted that there may be respondent bias in the reporting of access to latrine, as question on benefits received by the households from the Government schemes was asked prior to the question on access of households to latrine.

2. **Statement 13:** The major type of latrine used by the households was flush/pour-flush to septic tank in both rural and urban areas. About 50.9% of the households in rural areas and 48.9% of the households in urban areas used flush/pour-flush to septic tank type of latrine.

3. **Statement 15:** Among the households which had access to latrine, about 94.7% of the males and 95.7% of the females in the rural areas used latrine regularly while about 98.0% of the males and 98.1% of the females in the urban areas used latrine regularly.

4. **Statement 15:** Among the households which had access to latrine, about 93.8% of the males and 94.6% of the females in the rural areas regularly used improved latrine while about 97.2% of both males and females in the urban areas regularly used improved latrine.

13. **Statement 15:** Among the households which had access to latrine, about 85.8% of the males and 86.4% of the females in the rural areas regularly used improved latrine which was for exclusive use of the household while the corresponding figure was about 82.4% for males and 84.7% for females in the urban areas.

14. **Statement 16:** Among the households which had access to latrine, about 3.5% of the household members in the rural areas and about 1.7% of the household members in the urban areas never used latrine.

15. **Statement 18:** Among the households used latrine, about 4.5% of the households in the rural areas and about 2.1% of the households in the urban areas reported that water was not available in or around the latrine used.

16. **Statement 27:** Among the households living in houses, about 61.1% of the households in the rural areas and about 92.0% of the households in the urban areas had drainage system in the house for disposal of waste water/liquid waste.

25. **Statement 27:** Among the households living in houses, about 48.1% of the households in the rural areas disposed of household waste water without treatment to open low land areas/streets. In the urban areas, about 71.1% of the households disposed of household waste water without treatment to drainage system.

26. **Statement 27:** Among the households living in houses, about 72.4% of the households in the rural areas disposed of household garbage either in the household's individual dumping spot or in a common place other than community dumping spot. In the urban areas, about 70.3% of the households disposed of household garbage either in community dumping spot or in a common place other than community dumping spot.

27. **Statement 27:** Among the households living in houses, about 80.4% of the households in the rural areas had no arrangement for collection of household garbage. In the urban areas, *Panchayat*/municipality/corporation had made arrangement for collection of household garbage from about 74.1% of the households.

(Footnotes)

1 Cities and towns that have already achieved Open-Defecation Free (ODF) status as per the ODF protocol prescribed by the Ministry of Housing and Urban Affairs (MoHUA) can work towards ensuring sustainability of the ODF status to ensure proper maintenance of toilet.

Facilities hereby referred to as SBM ODF+, and safe collection, conveyance, treatment and disposal of all faecal sludge and sewage, hereby referred to as SBM ODF++, inorder to achieve safe sustainable sanitation for all.

2 https://swachhsurvekshan2019.org/Images/SS2019%20Report.pdf last accessed on January 3, 2020

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