

Environmental Pollution in India: Challenges and Remedies

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Abstract

The Swachh Bharat Mission (SBM), launched on October 2, 2014, by the Government of India, aimed to realize Mahatma Gandhi's vision of a clean and healthy nation by 2019, marking his 150th birth anniversary. Implemented through two components - SBM (Urban) under the Ministry of Urban Development and SBM (Gramin) under the Ministry of Drinking Water and Sanitation - the mission sought to eliminate open defecation, promote toilet construction and usage, ensure effective solid and liquid waste management, and create widespread hygiene awareness. Emphasizing behavioral change and community participation, the mission transformed cleanliness into a people's movement through public involvement, school programs, media campaigns, and celebrity endorsements. Millions of toilets were built across rural and urban India, significantly reducing open defecation and improving public health outcomes. Beyond infrastructure, SBM fostered a sense of responsibility and civic pride among citizens, promoting cleanliness as a shared duty and sustainable habit. The mission stands as a landmark initiative in public health and sanitation, driving India closer to Gandhi's dream of a Swachh and Swasth Bharat (Clean and Healthy India).

Keywords: Traditional foods, healthy lifestyle, disease, inactivity, diets.

Introduction

The Swachh Bharat Mission (SBM) was initiated by the Government of India on October 2, 2014, with the objective of transforming the nation into a clean and hygienic country by 2019, marking the 150th birth anniversary of Mahatma Gandhi. The initiative drew inspiration from Gandhi's strong belief that sanitation and personal cleanliness are fundamental to a healthy and progressive society. SBM was implemented through two components: Swachh Bharat Mission Urban, administered by the Ministry of Urban Development, and Swachh Bharat Mission Gramin, overseen by the Ministry of Drinking Water and Sanitation [1-4]. The major goals of the mission included eliminating open defecation, increasing access to household and community toilets, improving solid and liquid waste management systems, and enhancing public awareness on sanitation and hygiene practices. Through mass participation, extensive media advocacy, and collaboration with civil society, the mission emerged as one of the most impactful cleanliness initiatives in the country. The construction of millions of toilets in both rural and urban regions significantly contributed to the decline in open defecation and was associated with improvements in health outcomes [5-8].

A key component of SBM was fostering sustainable behavioural change, motivating individuals and communities to adopt and maintain hygienic practices. The campaign evolved into a citizen-led movement that actively involved educational institutions, local governing bodies, non-governmental organizations, and influential public figures. This collective effort strengthened community responsibility and long-term sanitation practices. In summary, the Swachh Bharat Mission has made a substantial contribution to

advancing environmental sanitation, enhancing public health, and working toward the realization of Gandhi's vision of a clean and healthy nation [9-13].

Swachh Bharat Mission: Urban Component

The urban division of the Swachh Bharat Mission (SBM-Urban) aims to achieve universal sanitation coverage in cities by eliminating open defecation, converting unhygienic toilet systems into modern flush toilets, abolishing manual scavenging, promoting effective municipal solid waste management, and increasing public awareness regarding hygienic sanitation practices [1].

The key targets of SBM-Urban include:

- Construction of 1.04 crore household toilets
- Establishment of 2.5 lakh community toilet units
- Setup of 2.6 lakh public toilet facilities
- Ensuring scientific solid waste management in every urban local body

Community toilets are constructed in locations where space or feasibility does not allow the development of individual household toilets. Public toilet facilities are provided in high-traffic areas such as tourist sites, transport terminals, marketplaces, and other important public zones. The implementation period of the mission covers five years and spans across 4,401 urban towns in India.

Financial Assistance

To promote toilet construction under SBM-Urban, the financial assistance structure includes:

- Individual household toilets: Central assistance of ₹4,000 per unit, supplemented by ₹1,333 from State Governments (₹400 for Northeastern and special category states)
- Community toilets: Central Government support covers 40 percent of the total cost, while State and Union Territory Governments contribute 13.33 percent (4 percent for Northeastern and special category states). The remaining funds are mobilized by Urban Local Bodies through public contributions or other funding mechanisms. The estimated cost for each community toilet seat is approximately ₹65,000 [2].

Budget Allocation

The overall financial requirement for the mission is estimated at ₹62,009 crore. Out of this, the Central Government is expected to provide ₹14,623 crore, allocated as follows:

- ₹7,366 crore for solid waste management systems
- ₹4,165 crore for individual toilet construction
- ₹1,828 crore for mass awareness and behavior change activities
- ₹655 crore for construction of community toilets

Overall, SBM-Urban represents a strategic and transformative national effort to enhance sanitation, develop sustainable solid waste management systems, and encourage long-term behavioral change among citizens to build a cleaner and healthier urban environment [3].

Swachh Bharat Mission (Gramin): Advancing Rural Sanitation

The rural sanitation programme, previously known as the Nirmal Bharat Abhiyan, was restructured and integrated into the Swachh Bharat Mission (Gramin) to make rural India open defecation free within five years. This initiative focuses on improving sanitation and hygiene in villages by promoting solid and liquid waste management, supporting Gram Panchayats in achieving open defecation-free status, and encouraging sustained behavioural change toward cleanliness and sanitary practices.

To achieve this goal, approximately ₹1,34,000 crore was earmarked for constructing nearly 11.11 crore toilets across rural households in India. The mission also emphasizes the adoption of innovative technologies to convert waste into useful byproducts such as organic fertilizers and renewable energy,

thereby aiding rural development. Implementation of the programme involves close coordination among Gram Panchayats, Panchayat Samitis, and Zila Parishads, along with active involvement of community members, school teachers, and students to promote sanitation awareness and community participation [4,5].

Financial Support for Household Toilets

Under the Swachh Bharat Mission (Gramin), financial incentives are provided for the construction of Individual Household Latrines (IHHLs), benefitting families from Below Poverty Line households and eligible Above Poverty Line categories. The eligible APL households include Scheduled Caste and Scheduled Tribe families, small and marginal farmers, landless laborers with homestead land, individuals with disabilities, and women-headed households.

Each IHHL is supported with an incentive of up to ₹12,000, which includes provisions for water access, handwashing facilities, and maintenance requirements. The cost-sharing structure is distributed as follows:

- Central Government: ₹9,000 (75 percent)
- State Government: ₹3,000 (25 percent)
- Northeastern and special category states receive ₹10,800 (90 percent) from the Central Government and ₹1,200 (10 percent) from the respective state governments

Beneficiary contribution is encouraged to promote a sense of ownership and ensure long-term sustainability of the sanitation facilities.

India's Standing in Sustainable Development Goals

In the context of the United Nations Sustainable Development Goals, India ranked 128th in the global index related to health as of September 19, 2017. The nation showed deficiencies in indicators associated with sanitation, air quality, hepatitis B prevalence, and child malnutrition, particularly wasting among children [6]

Key Global Insights

Key findings from the reported global health-related Sustainable Development Goals (SDG) analysis include:

- Evaluation was based on data from 1990 to 2014, with projections extending to 2030 across 188 countries.
- Countries were ranked according to a composite health-related SDG index score.
- Singapore, Iceland, and Sweden ranked highest, whereas Somalia, the Central African Republic, and Afghanistan ranked lowest.
- The United States held the 10th position.
- India's placement at 128th indicated major challenges in controlling air pollution, improving sanitation, and strengthening communicable disease management.
- Only 7 percent of countries are likely to meet the HIV/AIDS target, and no nation appears on track to eliminate tuberculosis by 2030 [7].

Understanding the Sustainable Development Goals

The Sustainable Development Goals (SDGs) represent a comprehensive global development framework established by the United Nations to guide member states through a 15-year period of coordinated progress. The SDGs expanded the scope of the Millennium Development Goals introduced in 2001, which concluded in 2015.

The SDG framework includes:

- 17 goals and 169 targets
- 232 measurable indicators
- A broad thematic focus spanning clean energy, climate resilience, economic growth, education, public health, and environmental protection

The Swachh Bharat Mission (Gramin) significantly contributes to India's advancement toward SDG commitments, particularly in the domains of sanitation, public health, water safety, and environmental sustainability [8,9].

The Sustainable Development Agenda: A Global Vision

The adoption of the 17 SDGs marks a major turning point in the pursuit of global development and human welfare. Designed as a blueprint for a prosperous, inclusive, and secure world by 2030, the goals outline a shared commitment to sustainable progress across social, economic, and environmental sectors. The 2030 Agenda for Sustainable Development was endorsed by 193 United Nations member states at the General Assembly in September 2015 and came into effect on January 1, 2016. This global strategy emerged from an extensive consultative process involving national governments, civil society groups, and citizens worldwide, reflecting a collective vision for long-term sustainability and equity.

List of the 17 Sustainable Development Goals

1. End poverty in all forms worldwide
2. End hunger and ensure sustainable food security and nutrition
3. Ensure healthy lives and promote well-being for all
4. Provide inclusive and equitable quality education and lifelong learning opportunities
5. Achieve gender equality and empower women and girls
6. Ensure availability and sustainable management of clean water and sanitation
7. Ensure access to affordable, reliable, and sustainable energy
8. Promote inclusive economic growth, productive employment, and decent work
9. Develop resilient infrastructure, foster sustainable industrialization, and promote innovation
10. Reduce inequalities within and among countries
11. Build inclusive, safe, resilient, and sustainable human settlements
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts
14. Conserve and sustainably use oceans, seas, and marine resources
15. Protect and restore terrestrial ecosystems, manage forests, combat desertification, and halt biodiversity loss
16. Promote peaceful and inclusive societies, provide justice for all, and build strong and accountable institutions
17. Strengthen global partnerships for sustainable development

A Global Call to Action

The Sustainable Development Goals (SDGs) aim to drive collective global progress across key areas such as poverty reduction, food security, education, health, gender equality, environmental conservation, and inclusive economic growth. The SDG framework emphasizes that sustainable development requires a balanced integration of economic, social, and environmental priorities. Recognizing the interconnected nature of issues including peace, justice, environmental protection, and industrial advancement, the SDGs call for coordinated participation from governments, private sectors, civil society, and individuals to build a safer, fairer, and more equitable world [10,11].

The Principle of “Leaving No One Behind”

A foundational concept of the SDG agenda is universality, ensuring that every individual, regardless of socio economic background, is included in the development process. The commitment to "leaving no one behind" focuses on prioritizing the needs of the most vulnerable and marginalized populations. Inclusive development requires meaningful involvement of all stakeholders so that progress reaches every segment of society.

India’s Commitment to Sustainable Development Goals

India has expressed strong support for the 2030 Agenda and has aligned key national development initiatives with the SDGs. Guided by the principle of "Sabka Saath, Sabka Vikas" which emphasizes development for all, the government highlights the importance of addressing social, economic, and environmental priorities collectively. National leadership has consistently reinforced the view that SDGs represent a holistic and evolving vision for sustained and inclusive progress.

India’s National Framework for SDG Implementation

The NITI Aayog has been entrusted with coordinating national SDG implementation and monitoring. Major efforts undertaken include:

- Mapping government schemes and policies to SDG targets
- Assigning lead and supporting ministries for each SDG goal
- Encouraging states to integrate SDG priorities into their development policies

Additionally, the Ministry of Statistics and Programme Implementation (MoSPI) leads the development of national indicators for measuring SDG outcomes. State governments have begun adopting SDG-driven planning frameworks, further strengthening India's execution strategy. Through this national alignment, India demonstrates its determination to contribute significantly to global sustainable development success [12].

Role of State Governments in SDG Progress

State governments play a central role in operationalizing SDG targets, given their direct engagement with local governance systems. Many flagship initiatives, such as Swachh Bharat, Make in India, Digital India, and Skill India, align closely with SDG objectives. As 15 of the 17 SDG goals relate directly to local governance, states are actively engaged in planning, budgeting, implementation, and monitoring systems to accelerate SDG achievement [13].

Advancing Collaboration and Partnerships

The United Nations in India has supported a broad consultative process to strengthen SDG implementation. Through participation in global forums, policy dialogues, and development finance meetings including the International Conference on Financing for Development in Addis Ababa and the UN General Assembly in New York, India has engaged international partners to enhance sustainable development strategies [14].

Addressing Interconnected Development Challenges

The UN Country Team in India, working jointly with NITI Aayog, promotes integrated efforts to address cross cutting challenges. Key areas of focus include:

- Promoting inclusive and equitable development
- Mobilizing financial resources for SDG programs
- Conducting thematic consultations with state governments, central ministries, research institutions, and civil society groups to identify context-specific solutions and strategies

Localizing the SDGs

Recognizing the distinct needs and priorities of different regions, the United Nations in India collaborates with state governments to embed SDG targets into state policies and planning frameworks. This localized approach ensures that development interventions are tailored to grassroots needs and effectively address regional disparities [15].

A Renewed Global Vision for Sustainable Development

The global community now faces unprecedented demands for leadership in poverty eradication, inequality reduction, and climate action. Responding to these emerging priorities, world leaders convened at the United Nations Headquarters in New York on September 25, 2015, to endorse the 2030 Agenda for Sustainable Development. This global framework underscores the urgency of coordinated action to protect the planet, foster equitable growth, and enhance human well-being.

Foundations of the Sustainable Development Goals

The Sustainable Development Goals (SDGs) were formulated following the Rio plus 20 United Nations Conference on Sustainable Development in 2012. This summit established the need for a comprehensive and balanced development framework that integrates three core dimensions of sustainability:

1. Environmental stewardship
2. Social equity and inclusion
3. Economic advancement

The SDGs succeed the Millennium Development Goals (MDGs), which were introduced in 2000 to address critical challenges related to poverty, hunger, education, gender inequality, and access to clean water and sanitation. The MDGs contributed to notable achievements, such as:

- Reduced global income poverty levels
- Improved access to safe drinking water
- Higher rates of primary school enrolment
- Declines in child mortality

Despite these gains, many gaps persisted, including persistent hunger, unequal access to healthcare and education, and continued gender disparities. The SDGs aim to build on MDG progress while addressing these residual challenges to create a more equitable and sustainable world.

The 2030 Agenda: Scope and Vision

Adopted on September 25, 2015, the 2030 Agenda for Sustainable Development introduced 17 interconnected goals designed to eliminate poverty, reduce inequalities, and mitigate climate threats by 2030. Unlike the MDGs, which focused largely on poverty reduction, the SDGs adopt a multidimensional perspective that confronts systemic inequalities, environmental degradation, and global economic disparities.

Former UNDP Administrator Helen Clark highlighted the significance of this transition, noting that the new agenda sets the world on a path toward inclusive and sustainable progress. She emphasized that collective global efforts can fulfil aspirations for peace, prosperity, and human well-being while safeguarding environmental resources for future generations.

A Global Commitment to Transformation

All 17 SDGs align closely with the United Nations Development Programme (UNDP) strategic priorities, with an emphasized focus on:

- Goal 1: Eliminating poverty in all forms
- Goal 10: Reducing inequalities between and within societies
- Goal 16: Promoting strong institutions, effective governance, and access to justice

These goals remain integral to UNDP's long term mission to foster sustainable development, strengthen democratic governance, and enhance environmental resilience [16].

Summary

The Swachh Bharat Mission (SBM), launched on October 2, 2014, is a nationwide program inspired by Mahatma Gandhi's vision of a clean and healthy India, aiming to eliminate open defecation, improve sanitation facilities, and promote hygiene practices. It comprises two components: Swachh Bharat Mission Urban and Swachh Bharat Mission Gramin. The urban mission, under the Ministry of Urban Development, focuses on constructing 1.04 crore household toilets, 2.5 lakh community toilets, and 2.6 lakh public toilets, along with establishing efficient solid waste management systems across 4,401 towns. The rural mission, led by the Ministry of Drinking Water and Sanitation, strives to make India Open Defecation Free by constructing 11.11 crore toilets with an allocation of ₹1,34,000 crore, fostering community participation, and promoting waste conversion into bio fertilisers and renewable energy. The mission provides financial support, including subsidies of ₹4,000 per household toilet in urban areas and up to ₹12,000 in rural regions, funded jointly by the central and state governments. With an overall estimated budget of ₹62,009 crore and a central contribution of ₹14,623 crore directed toward sanitation infrastructure, waste management, and public awareness, SBM aligns closely with Sustainable Development Goal 6 on clean water and sanitation. Despite India ranking 128th in the 2017 SDG health index, the mission reflects the nation's commitment to sustainable development, supported by NITI Aayog, state governments, local bodies, and civil society. Overall, SBM marks a transformative step toward improving sanitation, driving behavioural change, and advancing the vision of a cleaner, healthier, and more sustainable India by 2030.

Conclusion

A high-level global meeting, attended by delegates from more than 120 nations and including heads of state, ministers, and senior representatives from over 80 UN Member States, reaffirmed the international commitment to a shared roadmap for sustainable development. The discussions emphasized that building a cleaner, healthier, and environmentally resilient future requires coordinated and sustained action from all stakeholders. Simple yet impactful measures such as conserving water, minimizing plastic usage, adopting environmentally responsible habits, and promoting recycling were highlighted as essential components of this collective effort. Plastic waste remains a major environmental challenge, as it persists in the ecosystem for decades and significantly contributes to land and marine pollution. Therefore, responsible consumption, proper waste management, and widespread public awareness are critical in safeguarding natural resources and protecting the planet for future generations.

A Call to Action

As highlighted by United Nations Secretary General António Guterres, the 2030 Agenda and its 17 Sustainable Development Goals provide a unified and comprehensive framework to confront global challenges through an integrated approach that balances social, economic, and environmental considerations. The agenda underscores the importance of inclusiveness, policy integration, and the fundamental principle of ensuring that no one is left behind. By adopting sustainable practices in daily life and governance, societies can mitigate pollution, enhance air quality, and foster long term environmental and public health benefits. Protecting the planet is a shared responsibility, and collective commitment to sustainability is essential to secure a cleaner and healthier future for generations to come. The question that remains is whether we are prepared to actively contribute to this global mission and make a meaningful difference.

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