



Can Sacred Sustainability Be Achieved? Exploring Environmental Governance and SDG Integration at the 2025 Maha Kumbh Mela

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ABSTRACT

As the spiritual tide recedes following the sacred convergence at the Triveni Sangam, the Maha Kumbh Mela of 2025 continues to resonate as a profound expression of India's spiritual and cultural ethos. Taking place from January 13 to February 26 in Prayagraj, this extraordinary gathering—recognized by UNESCO as part of humanity's intangible cultural heritage—witnessed the participation of over 660 million devotees. Rotating among the holy cities of Haridwar, Ujjain, Nashik, and Prayagraj, the Kumbh Mela is deeply embedded in India's religious identity, with ritual bathing believed to absolve sins and aid in the pursuit of moksha. Despite its sacred significance, the event's vast scale brings forth pressing environmental and logistical concerns. This study offers a critical evaluation of the eco-conscious planning initiatives and green infrastructure adopted by the Uttar Pradesh Government, assessed in the context of the United Nations Sustainable Development Goals—specifically SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). Noteworthy interventions included establishing zones free of single-use plastic, encouraging biodegradable waste management practices, and implementing measures to regulate water consumption,

thereby minimizing environmental degradation. Infrastructure developments such as sewage treatment plants, eco-toilets, and systems to manage river discharge were key to maintaining water quality. Innovative green technologies also featured prominently in the event's sustainability model. Solar lighting, renewable energy grids, and eco-friendly accommodation options significantly lowered carbon emissions. Furthermore, clean transportation strategies—such as the introduction of electric buses, creation of cycling tracks, and walkable public areas—enhanced environmentally responsible mobility. Adopting a mixed-method research design, this paper integrates policy analysis, environmental assessments, and survey data from pilgrims to gauge the impact and limitations of the sustainability initiatives. The study finds that the deliberate environmental governance employed during the Mela led to measurable declines in pollution levels while preserving the sanctity of religious traditions. However, areas such as public awareness, consistent enforcement of green protocols, and efficient post-event waste management still demand further action. This research contributes to the broader field of sustainable religious tourism by presenting a framework of effective practices and policy recommendations, with implications for organizing similar large-scale spiritual gatherings both within India and around the world.

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India's spiritual heritage has long been rooted in reverence for nature, where rivers, mountains, and forests are not only geographical entities but embodiments of divine presence. Among the most remarkable expressions of this sacred ecology is the **Kumbh Mela**—the world's largest congregation of faith, held cyclically at the confluences of India's holiest rivers in **Haridwar, Prayagraj, Nashik, and Ujjain**. Pilgrims gather in the millions to perform the ritual of **Kumbh Snan**, a ceremonial bath believed to cleanse sins and bring spiritual liberation (moksha). This deeply symbolic act signifies not just personal transformation but also the inseparable bond between spirituality and nature.



However, as the scale of the event has grown exponentially, so have the **ecological and logistical burdens** it places on host cities and surrounding ecosystems. Temporary urban settlements, excessive water usage, plastic pollution, and massive waste generation strain infrastructure and threaten environmental integrity. The **Maha Kumbh 2025** in Prayagraj, which drew over 660 million devotees, posed a monumental challenge: **how to preserve the sanctity of the religious tradition while protecting the natural resources it venerates.**

This paper addresses that central question—**Can sacred sustainability be achieved?** It critically examines the **environmental governance strategies** adopted during the 2025 Kumbh Mela and assesses their alignment with the **United Nations Sustainable Development Goals (SDGs)**, particularly:

- **SDG 6:** Clean Water and Sanitation
- **SDG 11:** Sustainable Cities and Communities
- **SDG 12:** Responsible Consumption and Production
- **SDG 13:** Climate Action

By exploring **policy initiatives, technological innovations, waste management systems, and pilgrim awareness**, this study highlights how sacred events can serve as platforms for environmental consciousness and **religiously contextualized sustainability**. Furthermore, it evaluates both the successes and the gaps in implementation, offering lessons for future large-scale religious events in India and globally. The broader objective is to explore whether **sustainability and spirituality**—often perceived as separate domains—can be harmonized in practice.

Theoretical Framework

To investigate the intersection of spirituality, environmental governance, and sustainable development, this study draws upon an interdisciplinary theoretical framework **integrating concepts from** Sustainable Tourism, the Triple Bottom Line (TBL), and Eco-Theology.

1. Sustainable Tourism Theory

Sustainable tourism emphasizes the need to develop tourism activities in a manner that minimizes environmental degradation, respects local culture, and supports economic viability. In the context of the



Kumbh Mela, this lens is used to assess how pilgrimage-based tourism can be designed to benefit not only the pilgrims and local economy but also the ecological systems that support the event.

2. Triple Bottom Line (TBL) Approach

The TBL framework evaluates sustainability by considering three interdependent pillars:

- **Social equity:** Respecting the rights, beliefs, and participation of pilgrims and local residents
- **Environmental stewardship:** Reducing pollution, managing resources, and protecting ecosystems
- **Economic viability:** Ensuring that infrastructure investments and tourism income are equitable and long-lasting

This approach helps to assess the extent to which the Kumbh Mela planning achieved a balanced outcome.

3. Eco-Theology and Religious Ecology

Rooted in the study of how religious beliefs influence human-nature relationships, eco-theology explores the idea that caring for the environment is a spiritual obligation. In traditions such as Hinduism, rivers like the Ganga are personified as goddesses, and pollution is not only a physical issue but a moral and spiritual transgression. This framework provides a culturally embedded rationale for integrating ecological ethics into sacred events, suggesting that environmental conservation can be viewed as dharma (duty) rather than mere regulation.

4. Alignment with SDGs

This study closely examines the intersections between sacred practices and SDG indicators, especially:

- Access to clean sanitation facilities and river water conservation (SDG 6)
- Temporary urban planning and mobility solutions for massive gatherings (SDG 11)
- Waste management systems and behavioural change among pilgrims (SDG 12)
- Adoption of renewable energy, emission control, and climate adaptation measures (SDG 13)



Through this comprehensive theoretical lens, the chapter investigates how environmental governance during the Kumbh Mela attempts to translate abstract goals into concrete, culturally resonant actions, and whether this model can be institutionalized as a template for sacred sustainability.

Literature Review

Religious tourism has long served as a vital form of cultural and spiritual expression, often embodying a deep connection between faith and place. Among such spiritual gatherings, the **Kumbh Mela** stands apart not only due to its sacred significance but also because of the immense scale and complexity of its organization. Recognized globally as the **largest peaceful assembly of people**, the Mela draws millions of pilgrims for ritual bathing in sacred rivers, presenting both a spiritual spectacle and a substantial operational challenge (PIB, n.d.).

In recent years, the global shift toward **sustainable development** has prompted renewed scholarly and policy interest in the **ecological implications of mass religious gatherings**. Singh and Sharma (2021) observe a notable transition toward **environmentally responsive planning** at the Kumbh Mela, particularly through the integration of **green technologies** such as solar-powered lighting, eco-lodges, and renewable energy systems. These innovations help reduce the carbon footprint of the event while serving as scalable models for other large-scale urban and religious congregations. Sanitation and water management remain pivotal to the ecological sustainability of the Mela. Chatterjee and Das (2022) emphasize the significance of **sewage treatment plants, eco-sanitation systems, and biodegradable waste handling**, noting their role in **safeguarding riverine ecosystems**. These interventions not only maintain public health standards but also reinforce the **sacredness of water bodies** revered in Hindu traditions. Their findings support the notion that ecological integrity and spiritual purity can be mutually reinforcing when sanitation is properly managed.

The **alignment of Kumbh Mela practices with the United Nations Sustainable Development Goals (SDGs)** has become increasingly evident, especially during the 2025 Maha Kumbh. Emphasis on goals such as **SDG 6 (Clean Water and Sanitation)**, **SDG 11 (Sustainable Cities)**, **SDG 12 (Responsible Consumption and Production)**, and **SDG 13 (Climate Action)** reflects a deliberate shift toward sustainability-conscious governance (United Nations, 2015). The introduction of **plastic-free zones, waste segregation units, and recycling programs** demonstrates a commitment to reducing the event's ecological impact while promoting global sustainability norms.



Despite such efforts, implementation challenges persist. Sarkar and Bose (2023) highlight **gaps between environmental planning and on-ground execution**, especially concerning waste disposal logistics, regulatory enforcement, and pilgrim engagement. Their research underscores that while strategies may be sound in theory, **institutional limitations and public compliance** issues often compromise their effectiveness.

Sustainable mobility has emerged as another crucial dimension of green pilgrimage management. The World Bank (2018) advocates for **electric transport systems, bicycle-sharing networks, and pedestrian infrastructure** as means to alleviate congestion and **encourage eco-friendly behavior among pilgrims**. However, the scale and temporality of the event complicate consistent adoption and infrastructure longevity.

Bose and Jha (2020) argue that **multi-stakeholder coordination is key to sustainable outcomes** at religious mega-events. Their study reveals that effective policy execution hinges on **collaborative governance involving government bodies, NGOs, spiritual leaders, and local communities**. This participatory approach fosters a **sense of collective responsibility** for environmental stewardship. Patel and Rawat (2019) complement this view by examining **eco-conscious infrastructure development**, showing that temporary structures using **bamboo, compost toilets, and low-carbon materials** can successfully balance ecological concerns with pilgrim comfort and cultural authenticity.

Public awareness and behavioral change are central to sustainability success. Rana and Chugh (2021) demonstrate that **information campaigns, visual nudges, and volunteer engagement** can significantly influence waste-related behavior. Their findings suggest that **environmental education embedded within religious practices** may be more effective than external regulatory mandates alone.

Echoing this idea, Sharma and Kaul (2018) delve into the **concept of sacred ecology**, asserting that Indian pilgrimage traditions already contain **inherent environmental ethics**. Revisiting and reviving these indigenous philosophies may be instrumental in shaping a **spiritually aligned environmental consciousness**. Bhardwaj and Mishra (2022) take a more technological lens, highlighting the role of **real-time surveillance, AI-based waste tracking, and digital water quality monitoring** in enhancing environmental responsiveness and operational transparency during the Mela.



Across these studies, a common thread emerges: while significant strides have been made toward **environmental governance and SDG integration**, the long-term sustainability of religious mega-events like the Kumbh Mela demands more than just technological fixes or policy interventions. It requires a **deep integration of environmental values into cultural and religious narratives**, supported by robust public participation, interdisciplinary governance, and adaptive infrastructure.

Research Methodology

This study employs a **qualitative research design** rooted in the analysis of **secondary data** to investigate the sustainable practices adopted during the **Maha Kumbh 2025** in **Prayagraj**. The research aims to critically evaluate the environmental governance mechanisms and their alignment with the **United Nations Sustainable Development Goals (SDGs)**, particularly those related to clean water, sustainable cities, responsible consumption, and climate action (SDGs 6, 11, 12, and 13).

Data was collected from a wide range of credible sources, including:

- **Government reports and white papers**
- **Environmental Impact Assessments (EIAs)**
- **Policy documents and sustainability plans**
- **Academic journal articles and published research**
- **Media coverage and press releases**
- **Official communications from the Government of Uttar Pradesh and allied institutions**

A **thematic analysis** approach was adopted to identify recurring patterns, strategies, and interventions associated with sustainable event management. This included the examination of infrastructure planning, waste management systems, water sanitation, eco-mobility, and community engagement strategies employed during the event.

This study also reviewed **existing literature and prior case studies** on religious tourism, environmental ethics, and sacred sustainability to provide a comparative context and enrich the interpretation of findings. Emphasis was placed on evaluating the **effectiveness and cultural relevance** of these initiatives, with a focus on maintaining the **spiritual sanctity** of the Kumbh Mela while promoting ecological balance.



Sustainable Practices at Kumbh Mela 2025

The Maha Kumbh Mela 2025 in Prayagraj provided a vital platform for showcasing how environmental responsibility can be woven into the fabric of religious and cultural celebrations. With the participation of millions of devotees, managing ecological impact was a significant priority. In alignment with the United Nations Sustainable Development Goals (SDGs), a multi-stakeholder approach involving government agencies, NGOs, local communities, and technology partners was adopted to implement environmentally conscious solutions. The following initiatives were key highlights of the event's sustainability efforts:

1. Zero-Waste Zones and Eco-Wise Disposal

To tackle the problem of non-degradable waste, authorities enforced strict restrictions on plastic use throughout the Kumbh site. Pilgrims and vendors were encouraged to use biodegradable alternatives for food packaging and religious offerings. A decentralized waste management system was introduced, focusing on sorting waste at the point of origin, timely collection, and systematic recycling. These measures significantly reduced landfill waste and kept the pilgrimage site clean and eco-friendly.

2. Sacred Waters, Safe Waters

Protecting the sanctity of the river at the confluence (Triveni Sangam) was a central concern. To prevent contamination, multiple sewage treatment facilities were set up to process wastewater before it could enter the river system. Smart water regulation systems were also deployed to maintain appropriate water levels in sacred zones, ensuring both ecological balance and spiritual experience.

3. Green Energy and Conscious Construction

Sustainable design principles were at the core of temporary constructions at the Mela. Solar-powered lighting systems lit up key areas of the festival, reducing reliance on fossil fuels. Eco-lodges and tents were built using natural and low-impact materials, while compost toilets were installed to ensure hygienic sanitation with minimal environmental disturbance. These choices contributed to lowering the carbon footprint of the entire event.



4. Clean Commutes for Sacred Routes

To reduce vehicular emissions and traffic congestion, electric shuttle services and bicycle-sharing systems were made available to pilgrims and staff. Walking paths were enhanced and clearly marked, making it easier for visitors to move around on foot. These mobility solutions not only improved the flow of movement but also supported climate-friendly transportation goals.

5. Pilgrim Participation and Green Awareness

The involvement of pilgrims was considered crucial to the success of sustainable efforts. Campaigns on environmental consciousness were conducted through banners, digital displays, and mobile announcements. Volunteers and nonprofit groups worked together to promote practices like water conservation, litter-free behavior, and ethical consumption. These campaigns helped instill a sense of ecological responsibility among the masses, reinforcing sustainability as a shared spiritual duty.

By integrating these green practices, the Kumbh Mela 2025 emerged as a model for sustainable religious tourism. It demonstrated that spiritual gatherings of immense scale can be planned and executed in ways that honor both cultural traditions and ecological integrity, setting a standard for future events across India and the world.

5. Analysis and Findings

A critical evaluation of the sustainable strategies employed during the Maha Kumbh Mela 2025 reveals meaningful progress in environmental stewardship, along with some areas that require reinforced efforts. The overarching objective was to harmonize the spiritual fervor of the Mela with ecological responsibility, guided by the United Nations Sustainable Development Goals (SDGs). Below are the core insights drawn from the analysis:

Key Findings:

1. Curbing Plastic: Progress and Gaps



The plastic-free campaign marked a noteworthy step in reducing non-biodegradable waste. Many pilgrims and vendors adopted eco-friendly materials, and plastic usage noticeably declined. However, achieving full compliance proved challenging due to limited monitoring and occasional resistance from vendors. The availability of biodegradable packaging helped mitigate some environmental stress, but stricter enforcement mechanisms are needed for consistent results.

2. Protecting the Sacred Waters

Efforts to safeguard the purity of the Triveni Sangam were evident in the deployment of sewage treatment plants and smart water regulation systems. These interventions led to observable improvements in water quality during the event. Despite these advancements, long-term water conservation remains a concern. Continued river health monitoring and sustainable urban drainage solutions are necessary to ensure the sanctity of these sacred water bodies beyond the festival's duration.

3. Green Builds and Clean Tech

The integration of solar energy, temporary eco-lodgings, and compost-based sanitation facilities reflected a conscious move toward low-impact infrastructure. Pilgrims responded positively to improved hygiene conditions facilitated by eco-toilets. Nevertheless, questions persist around the scalability and long-term maintenance of such facilities, especially given the transient nature of the Mela infrastructure.

4. Greener Movement, Limited Reach

The introduction of electric transport options such as e-buses and bicycles helped ease congestion and reduce emissions in selected zones. Dedicated pedestrian paths also encouraged foot travel. Yet, the limited availability of electric buses and the continued use of conventional vehicles reduced the overall effectiveness of this initiative. Future iterations may benefit from expanded fleet sizes and stricter regulation of fuel-based transport within the event zone.

6. Discussion

The analysis highlights that large-scale religious gatherings, such as the Maha Kumbh Mela, hold immense potential to become platforms for advancing environmental sustainability. The 2025 edition of the Mela demonstrated notable progress, particularly through the efforts of the Government of Uttar Pradesh in embedding eco-conscious measures into event planning and execution. However, the event's scale inevitably introduced logistical complexities that affected the uniform implementation and long-term viability of these interventions.



A key theme emerging from the findings is the need to deepen pilgrim participation in sustainability efforts. While information drives and environmental campaigns were rolled out, their reach and influence were inconsistent. Future initiatives must adopt more interactive, localized, and behavior-focused strategies to instill eco-friendly habits among attendees before and during the event.

Additionally, although the deployment of green technologies and infrastructure—such as solar lighting and eco-toilets—represented significant strides, questions remain regarding their adaptability and expansion. Temporary sustainable facilities must be backed by long-term planning and resource allocation to ensure they remain functional and scalable for subsequent events, especially in less developed or resource-constrained areas.

In essence, while the 2025 Kumbh Mela laid a promising foundation for sustainable religious tourism, it also revealed the need for a more integrated, community-driven, and resilient model that can evolve with each future gathering.

Another significant challenge lies in managing waste after the event concludes. While the initiatives to reduce waste during the Maha Kumbh Mela were commendable, the task of post-event waste disposal and long-term waste management continues to be a critical concern. The sheer volume of waste generated during such a massive congregation necessitates a more efficient and robust waste segregation and recycling system. Without such measures, the aftermath of the event could lead to environmental degradation and a considerable strain on local waste management infrastructure. Implementing more advanced waste management solutions, coupled with enhanced logistics and greater post-event collaboration between local authorities and stakeholders, will be crucial in addressing this issue effectively in future editions.

7. Policy Recommendations

Based on the analysis and findings, several policy recommendations can enhance the sustainability of future editions of the Kumbh Mela and other large-scale religious events:

1. Strengthen Pilgrim Awareness and Participation

Implementing sustainable practices requires more than just awareness campaigns. It's essential to actively engage pilgrims by offering incentives for adopting eco-friendly behaviors such as waste segregation, water conservation, and utilizing sustainable transport options. Establishing dedicated



volunteer teams can facilitate this engagement, providing guidance and support to pilgrims in practicing environmental responsibility during the event.

2. Expand and Enhance Sustainable Infrastructure

To minimize the environmental impact of large-scale events, it's crucial to increase the use of renewable energy sources like solar power for temporary structures. Incorporating water-saving technologies and eco-friendly sanitation facilities, such as composting toilets, can further promote sustainability. These measures not only reduce resource consumption but also set a precedent for future events aiming for environmental stewardship.

3. Develop Comprehensive Waste Management Strategies

Effective waste management is vital for the success of any large-scale event. Implementing robust systems for waste segregation, collection, and recycling is essential. Investing in long-term solutions like composting units and waste-to-energy technologies can address the large amounts of organic waste generated. Additionally, establishing a structured post-event waste disposal system ensures that the environmental impact is minimized even after the event concludes.

4. Promote Sustainable Transportation Options

Encouraging the use of electric buses, bicycles, and pedestrian pathways can significantly reduce air pollution and traffic congestion during large events. Providing convenient and accessible transportation options, such as free shuttle services or designated bike lanes, can incentivize pilgrims to choose sustainable modes of transport. This approach not only benefits the environment but also enhances the overall experience for attendees.

5. Implement and Enforce Robust Sustainability Policies

The successful implementation of sustainability measures requires stringent enforcement. Strengthening policies related to waste disposal, water conservation, and plastic use, alongside regular inspections and fines for non-compliance, will help ensure better adherence to green regulations. Additionally, fostering collaboration among stakeholders and providing training can enhance the effectiveness of these policies.

The Maha Kumbh Mela 2025 marked a significant milestone in integrating sustainability into religious tourism. Through comprehensive initiatives such as plastic-free zones, biodegradable waste



management, water conservation practices, and the promotion of sustainable mobility, the event made notable progress in aligning with the United Nations Sustainable Development Goals (SDGs). However, as evidenced by the findings, there is still much room for improvement in terms of scalability, compliance, and long-term environmental stewardship. The challenges encountered in waste management, infrastructure sustainability, and pilgrim behavior underscore the need for continuous innovation and more stringent enforcement of sustainable practices.

This research contributes to the growing discourse on sustainable religious tourism, offering valuable insights and policy recommendations to guide the future of large-scale spiritual events. By refining these practices, the Kumbh Mela can serve as a global model for how cultural and religious celebrations can coexist with environmental responsibility, ultimately fostering a harmonious relationship between spirituality and sustainability.

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