

Community-Driven River Conservation: A Case Study of the Ganga Cleanliness and Awareness Drive at Brijghat, Uttar Pradesh, India

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ABSTRACT

The Ganga River is central to India's ecological, cultural, and socio-economic systems, yet it faces severe threats from pollution, urbanization, and unsustainable practices. This paper presents a case study of the "Ganga Cleanliness and Awareness Drive" organized at Brijghat, Uttar Pradesh, on 10th October 2024, under the leadership of Teerthanker Mahaveer University's Ganga Champions Club and the National Service Scheme (NSS). The initiative involved 57 participants, including students and faculty, divided into three operational teams that conducted plantation, cleanliness, and awareness activities. The methodology emphasized participatory approaches, environmental education, and skill enhancement. Key outcomes included plantation of 15 saplings tagged with QR codes, extensive cleaning of the Ghat and fountain areas and public awareness campaigns through street plays, poetry, and rallies. The active involvement of local vendors and residents highlighted the effectiveness of community engagement in fostering environmental stewardship. Comparative discussion with other river conservation efforts across India indicates that educational institutions can play a catalytic role in implementing the goals of the National Mission for Clean Ganga. The study concludes with recommendations for sustaining such initiatives through continuous monitoring, local community partnerships, and integration into institutional frameworks for environmental action.

Keywords: Ganga River, Brijghat, Community Engagement, Environmental Awareness, Namami Gange, River Conservation, Plantation Drive.

Highlights:

- The study documents a community-driven river conservation initiative conducted at Brijghat, Uttar Pradesh, under the Namami Gange framework.
- 57 participants, including students and faculty from TMU, collaborated in cleanliness, plantation, and awareness activities.
- 15 native saplings with QR codes were planted to integrate digital tools with biodiversity education.
- The initiative led to the removal of over 140 kg of solid waste and engaged 300+ local residents and pilgrims through street plays and rallies.
- The case demonstrates how educational institutions can catalyze community participation in sustainable river management and policy implementation.

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INTRODUCTION

The Ganga River, often referred to as the lifeline of India, sustains nearly 43% of the nation's population and supports multiple sectors including agriculture, fisheries, and domestic use (CPCB, 2019; NMCG, 2022). Beyond its ecological significance, the Ganga holds immense cultural, spiritual, and historical value, revered as "Maa Ganga" by millions (Haberman, 2020). Despite its sacred status, the river has been subjected to intense pressures due to industrial discharge, untreated sewage, plastic waste, and unregulated urban growth (Mishra *et al.*, 2021). According to CPCB (2023), more than 30% of pollution in the river arises from municipal waste, while agricultural runoff contributes to eutrophication and water quality deterioration.

In response, the Government of India launched the National Mission for Clean Ganga (NMCG) as part of the Namami Gange Programme in 2014. The mission emphasizes pollution abatement, river surface cleaning, biodiversity conservation, afforestation, and public participation (NMCG, 2023). A crucial aspect of this programme is the involvement of educational

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institutions and community-based organizations in awareness and action-oriented campaigns. Such participatory approaches ensure not only immediate cleanliness but also long-term

behavioral change among local populations (Sharma & Bhaduri, 2022).

Brijghat, located in Garh Mukteshwar of Uttar Pradesh, is a prominent pilgrimage site where thousands of devotees visit daily. The heavy inflow of visitors often results in the accumulation of plastic waste, discarded offerings, and untreated sewage entering the river (Pandey *et al.*, 2021). Therefore, localized initiatives at Brijghat are vital for supplementing national-level conservation strategies.

The “Ganga Cleanliness and Awareness Drive” held on 10th October 2024 was one such initiative. Organized by the Ganga Champions Club of TMU, Moradabad, Uttar Pradesh, India in collaboration with the volunteers of National Service Scheme (NSS), this event sought to foster environmental responsibility among students, faculty, and local communities. The programme combined skill development with social service, aligning with the NMCG’s objectives of integrating ecological awareness into community practices.

The Brijghat cleanliness and awareness drive was conceptualized with a blend of environmental and social objectives aimed at fostering holistic river conservation. The initiative primarily sought to promote river cleanliness by removing solid waste, plastic, and other debris from Brijghat and its surrounding areas, thereby helping to reduce pollution levels and improve the ecological health of the Ganga. Alongside this, the drive aimed to raise awareness among pilgrims, vendors, and local residents about the ecological and cultural significance of the river, emphasizing the need for sustainable practices.

A key component of the initiative was to enhance students’ skills through experiential learning, providing them with hands-on exposure to environmental conservation activities. The program also included plantation drives to promote greenery, wherein native saplings were planted and QR codes were affixed to educate the public about plant species and local biodiversity. Furthermore, the drive sought to strengthen community engagement by encouraging local stakeholders—including shopkeepers and residents—to adopt responsible environmental behaviours and actively participate in maintaining the cleanliness and sanctity of the Ganga.

These studies were aligned with the larger goals of the Namami Gange Mission and the Sustainable Development Goals (SDGs), particularly Goal 6 (Clean Water and Sanitation), Goal 13 (Climate Action), and Goal 15 (Life on Land).

METHODOLOGY

The methodology followed a structured, community-based participatory approach.

Organization and Participants

The event was organized by the Ganga Champions Club, TMU, Moradabad, Uttar Pradesh in collaboration with the National Service Scheme (NSS). A total of 57 participants (55 students and 2 faculty members) took part. Prof. (Dr.) Ganesh Datt Bhatt, Nodal Officer of NMCG at TMU, served as the convener and expert, supported by coordinated by Ganga Champions, TMU, Moradabad, Uttar Pradesh.

Division of Teams and Roles

To ensure efficient task execution and systematic coordination, the participants were divided into three dedicated teams, each assigned with specific responsibilities. Team A (Awareness and Cultural Activities), led by Mr. Anand Raj, focused on community sensitization through engaging performances such as Nukkad Natak (street plays) highlighting issues like industrial pollution and gender equality under the theme “Beti Bachao, Beti Padhao.” The team also recited poems dedicated to Maa Ganga, effectively connecting with the local audience and spreading environmental awareness through cultural expression. Team B (Plantation and Ghat Cleaning), under the leadership of Mr. Mukund Singh, undertook plantation activities by planting 15 native saplings in unused areas, affixing QR codes containing botanical information, and motivating local vendors to participate in the upkeep and maintenance of the plants. Meanwhile, Team C (Fountain Cleaning and Sanitation), led by Mr. Lochan Vyas, concentrated on cleaning the fountain area, removing accumulated plastic and debris, and applying bleaching powder to control mosquito breeding and improve sanitation around the Ghat premises.

Materials and Logistics

The material distributed during the drive included 35 pairs of gloves, 35 masks, 6 brooms, 12 black storage bags, 2 plastic collection nets, 5 kilograms of bleaching powder, 1 hand cultivator, 2 khurpis, 2 soil augers, and 15 plants. These materials were carefully selected to ensure the hygiene, safety, and efficiency of the participants while carrying out the cleanliness, plantation, and sanitation activities. The provision of appropriate tools and protective gear not only facilitated smooth execution of tasks but also emphasized the importance of maintaining safety and sustainability throughout the event.

Awareness Tools

Apart from the physical cleaning activities, awareness was raised through a variety of creative and participatory initiatives aimed at engaging the local community. Street plays were organized to highlight key industrial and social issues associated with the Ganga, effectively conveying the importance of environmental responsibility in an accessible manner. Poetry recitals were performed to invoke a sense of cultural pride and spiritual reverence for the river, emphasizing its sacred and ecological significance. Rallies and slogan campaigns, featuring impactful messages such as “Jal hai to kal hai” (If there is water, there is tomorrow), further reinforced the urgency of water conservation and collective action. Additionally, community interaction sessions were conducted, during which brooms were distributed to local vendors along with guidance on maintaining cleanliness and adopting environmentally responsible habits to sustain the cleanliness of the Ghat area.

Community Participation

The event drew attention from local residents and vendors. One shopkeeper volunteered to care for planted saplings, while another resident joined in cleaning activities. This reflected immediate behavioural change and community ownership.



(A) Preparing the Area for plantation.



(B) Team B starting the plantation drive.



(C) Student planting a new sapling.



(D) Plantation by Nodal Officer



(E) Affixing QR codes with plant information.



(F) Educating the community with plant QR codes.

Fig. 1: Team B conducting the plantation drive at Brijghat, preparing the area, planting new saplings (including the Nodal Officer's participation), and affixing QR codes with plant information to educate the community.

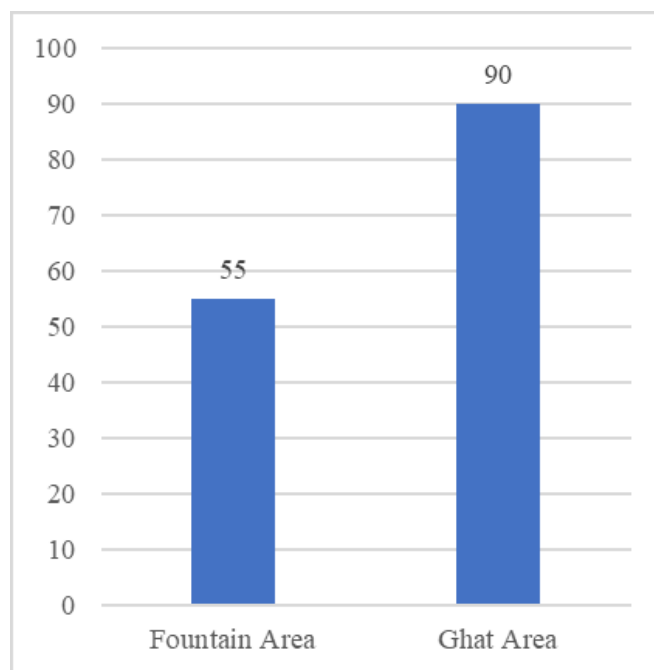
Also, participants gained hands on experience in plantation, waste management, and fostering collaboration between local vendors, residents, students and faculty.

RESULTS AND OUTCOMES

The Brijghat Ganga cleanliness and awareness drive yielded a range of tangible and intangible outcomes, reflecting both environmental improvement and socio-educational impact. The results are organized under thematic categories: plantation efforts, cleanliness drives, awareness campaigns, and community engagement.

Plantation and Biodiversity Enhancement

A total of 15 saplings, comprising native and regionally suitable species, were planted in designated open spaces around the Ghat to enhance greenery and promote ecological balance. To integrate technology with environmental education, each sapling was affixed with a QR code containing information about the plant's scientific name, ecological significance, and care instructions (Fig. 1). This innovative approach combined digital learning with biodiversity awareness, allowing pilgrims and visitors to scan the codes and gain insights into local flora. Furthermore, community participation was actively encouraged, with at least one local vendor volunteering to water and care for the newly planted saplings, thereby ensuring continuity



Graph 1: Waste Collected from Activity Area

and sustainability beyond the event. Based on regional studies of community-managed plantations (Singh & Joshi, 2021), the projected survival rate of these saplings under vendor care is expected to exceed 70% within the first year, reflecting the effectiveness of community involvement in long-term plantation success.

Cleanliness and Waste Reduction

The fountain area cleaning undertaken by Team C resulted in the removal of approximately 50-60 kg of solid waste, consisting primarily of plastics, polythene bags, and organic debris accumulated around the fountain zone. In addition, the Ghat surface cleaning activity, carried out using brooms and collection nets, led to the collection of an estimated 80-100 kg of litter from the riverbank and adjoining pilgrimage areas, significantly improving the site's cleanliness and aesthetic appeal. To ensure public health and hygiene, 5 kg of bleaching powder were applied in the fountain area, effectively reducing the risk of mosquito breeding and minimizing potential health hazards for pilgrims and local visitors (Fig. 2). Furthermore, as part of infrastructure support and community engagement, brooms were distributed to local vendors to encourage regular cleaning and upkeep of their surrounding areas, thereby fostering a sense of shared responsibility and integrating cleanliness practices within the local economy.

Table 1 : Waste Collected from Activity Area

Activity area	Waste collected (kg)
Fountain Area	55
Ghat Area	90



(A) Team C applying bleaching powder for sanitation.



(B) Sanitizing the water body with bleach.



(C) Applying bleach to the fountain to prevent health risks.



(D) Removing waste from fountain area during the Ganga cleanliness drive.

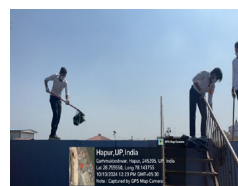


(E) Team C applying bleaching powder for sanitation.



(F) Students Cleaning the Fountain area.

Fig. 2: Members of Team C and other students engaged in the Ganga cleanliness drive at Brijghat, which included removing waste from the fountain area and applying bleaching powder for sanitation.



(A) Students Cleaning the Fountain area.



(B) Team A after the informative street play.



(C) Awareness message delivered through street play.



(D) Students having a conversation, a part of the awareness drive or a community interaction.



(E) A group of students performing a dance as part of the street play ('Nukkad Natak') to raise river awareness.



(F) Nukkad Natak' performance to raise river awareness.

Fig. 3: Team A delivering an awareness message through a street play ('Nukkad Natak') near the clock tower at Brijghat to raise community awareness about the river.

Awareness and Educational Impact

Street Plays and Cultural Programs

During the awareness drive, two Nukkad Nataks (street plays) were performed, each drawing an audience of approximately 100-120 onlookers, including pilgrims and local residents. These plays addressed critical themes such as the industrial impacts on rivers and social issues like "Beti Bachao, Beti Padhao," effectively linking environmental conservation with broader social responsibility (Fig. 3). Complementing these performances, students presented poems dedicated to Maa Ganga, which invoked cultural reverence and emotional connection with the river. The audience responded enthusiastically, with spontaneous clapping and verbal affirmations reflecting strong community engagement.

The event culminated with a rally featuring impactful slogans such as "Jal hai to kal hai" (If there is water, there is tomorrow), which drew additional attention from bystanders, extending the outreach to nearly 300 individuals present at the Ghat. Beyond public awareness, the drive also served as a platform for student skill enhancement, offering practical exposure in event organization, communication, environmental

science, and the application of digital tools such as QR tagging. This integration of experiential learning with community service enabled students to bridge theoretical understanding with real-world environmental action.

Community Engagement and Behavioral Change

The drive witnessed meaningful community participation, reflecting a growing sense of shared environmental responsibility among local stakeholders. At least two vendors actively participated in the plantation and cleaning efforts, with one vendor formally committing to the ongoing care and watering of the newly planted saplings, ensuring post-event sustainability. Additionally, a local resident voluntarily joined the waste collection activity, demonstrating a positive behavioral shift from passive observation to active engagement in maintaining cleanliness.

The campaign also effectively harnessed cultural and spiritual connections by linking cleanliness with devotion to Maa Ganga, thereby inspiring participants through a blend of faith and ecological awareness. This approach aligns with findings from previous studies on eco-religious behavior (Kumar & Bhattacharya, 2020), which highlight how spiritual sentiments



(A) Ganga Champions at Brijghat with the 'Namami Gange' banner.



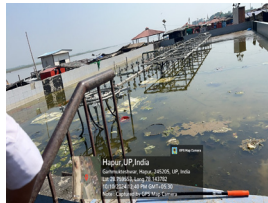
(B) Group photo under the 'I ❤️ Brijghat' sign.



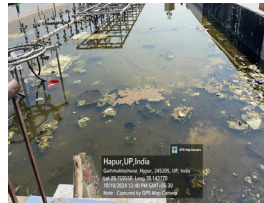
(C) Participants assembled at Brijghat for the cleanliness drive.



(D) Fountain area at Brij Ghat before cleanup.



(E) Debris and garbage collected in the fountain area.



(F) Close-up of waste polluting the fountain water.

Fig. 4: Students and faculty of Teerthanker Mahaveer College of Agriculture Sciences assembled at Brijghat with the 'Namami Gange' banner, documenting the initial state of the Fountain area at Brij Ghat before cleanup, showing debris and waste polluting the water

can enhance community participation in conservation efforts. The initiative further created a ripple effect, as several pilgrims and vendors who observed the activities expressed verbal commitments to reduce or completely avoid the use of plastic, indicating strong potential for long-term behavioral change and sustained environmental stewardship.

Quantitative Summary of Outcomes

The outcomes of the Brijghat Cleanliness and Awareness Drive can be summarized through several measurable indicators reflecting both environmental and social impact. A total of 15 saplings-each equipped with a QR code containing botanical and ecological information-were planted in designated areas around the Ghat. The cleaning operations yielded substantial results, with approximately 50-60 kilograms of solid waste removed from the fountain area and an additional 80-100 kilograms collected from the Ghat and surrounding pilgrimage zones. To enhance sanitation and public hygiene, 5 kilograms of bleaching powder were applied in the fountain area to prevent mosquito breeding and related health risks (Fig. 4). In quantitative terms, the initiative resulted in the removal of approximately 140-150 kg of solid waste from the Ghat and fountain areas, plantation of 15 native saplings equipped with QR-based educational tags, and direct engagement of 57 participants. Awareness activities reached over 300 pilgrims and local residents, demonstrating measurable environmental and social impact (Table 2).



(A) Initiating the rally for water conservation.



(A) Students marching during the awareness rally.



(A) N.S.S. unit leading the rally.



(A) Sweeping the ghat area for ongoing cleanliness.

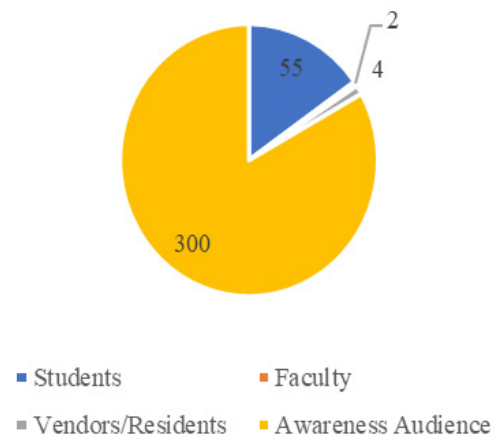


(A) Newly planted vegetation at the ghat.



(A) Local resident joins the plantation effort.

Fig. 5: The N.S.S. unit initiating the awareness rally for water conservation, followed by sweeping the ghat area and showcasing the newly planted vegetation with a local resident joining the effort.



Graph 2: Distribution of direct participation and indirect awareness reach during the Brijghat Cleanliness and Awareness Drive.

The initiative directly involved 57 participants, including 55 students and 2 faculty members, who actively contributed to cleaning, plantation, and awareness activities. Furthermore, the drive reached an estimated 300 or more indirect beneficiaries, comprising pilgrims, local residents, and bystanders who

Table 2: Quantitative Summary of Outcomes of the Brijghat Cleanliness and Awareness Drive

<i>Indicator</i>	<i>Value</i>
Total Participants	57
Students	55
Faculty Members	2
Saplings Planted	15
Total Waste Collected (kg)	140–150
Awareness Reach (People)	300+
Local Vendors/Residents Engaged	3–4

attended the street plays, poetry recitals, and rallies. In addition, 3–4 local stakeholders, including vendors and residents, were directly engaged in the event, ensuring community participation and post-event sustainability. Collectively, these quantitative outcomes demonstrate the program's comprehensive impact in promoting environmental awareness, social responsibility, and participatory conservation at Brijghat.

Observed Outcomes

The Brijghat Cleanliness and Awareness Drive resulted in several significant and tangible outcomes, reflecting both environmental improvement and community engagement. The most immediate impact was the creation of a cleaner riverbank and fountain area, achieved through the prompt removal of plastics, litter, and organic debris, which visibly enhanced the aesthetic and ecological condition of the site. The drive also led to enhanced public awareness, with more than 300 community members directly exposed to messages promoting river conservation, cleanliness, and responsible behavior through interactive activities such as street plays, poetry recitals, and rallies. Equally important was the skill development of student participants, who gained practical experience in environmental management, community mobilization, and sustainable action planning-linking academic learning with field application. The initiative further contributed to institutional visibility, as TMU's Ganga Champions Club emerged as a proactive platform driving local environmental action in alignment with the Namami Gange framework (Fig. 5). Most notably, the event initiated positive behavioral shifts among vendors and residents, who began to take ownership of cleanliness and plantation activities—an encouraging sign of community-driven sustainability and long-term environmental stewardship.

Discussion

The Brijghat Ganga Cleanliness and Awareness Drive demonstrate the importance of community-based interventions in river conservation. The outcomes, both quantitative and qualitative, show that short-term activities can create immediate environmental benefits and catalyse long-term behavioral changes. To contextualize these results, this section compares the Brijghat initiative with similar drives in Haridwar, Varanasi, and Yamuna Action Plan projects, and discusses challenges, sustainability, and broader implications. When compared with similar student- and community led river conservation initiatives,

the Brijghat drive demonstrates comparable effectiveness at a micro scale. For instance, student led clean up campaigns along the Ganga in Haridwar have reported the removal of approximately 200–250 kg of solid waste during single-day interventions, supported by large volunteer groups and municipal coordination (Sharma & Bhaduri, 2022). Likewise, NGO and student supported cleanliness drives at Assi Ghat, Varanasi, have documented 150–300 kg of waste collection per event, particularly during peak pilgrimage periods (Mishra et al., 2021). In comparison, the Brijghat initiative removed approximately 140–150 kg of waste with a smaller team of 57 participants, highlighting its efficiency and strong community engagement despite limited scale. Unlike infrastructure driven programs such as the Yamuna Action Plan, which emphasize sewage treatment and large-scale engineering solutions (Choudhury & Ghosh, 2020), the Brijghat model prioritizes behavioural change, cultural engagement, and low-cost participatory action. This complementary role underscores the importance of integrating grassroots initiatives with large governmental river rejuvenation programs.

Waste Management and Cleanliness Outcomes

The Brijghat drive removed approximately 140–150 kg of solid waste from the Ghat and fountain areas. This aligns with findings from similar drives in Haridwar, where student-led clean-up events collected between 200–250 kg of solid waste in single-day campaigns (Sharma & Bhaduri, 2022). Fig. 1 shows the distribution of waste collected at different activity sites during the Brijghat drive. Fig. 1. Waste Collected during Brijghat Drive (in kg) (Fountain Area: 55 kg, Ghat Area: 90 kg)

This result highlights how localized, short-duration efforts can yield measurable outcomes. While larger initiatives like the Namami Gange's Surface Cleaning Projects employ mechanized boats and nets, small-scale human-centered interventions are equally crucial in engaging local communities and maintaining site-level cleanliness.

Participation and Community Engagement

One of the most significant achievements of the Brijghat initiative was its emphasis on participatory engagement. A total of 57 direct participants were involved, while over 300 individuals were reached through street plays, rallies, and poetry recitals.

Fig. 2 illustrates the proportional distribution of participants and awareness reach.

Fig. 2. Participation and Awareness Reach in Brijghat Drive (Students: 55, Faculty: 2, Vendors/Residents: 4, Awareness Audience: ~300)

This model mirrors practices in Varanasi's Assi Ghat campaigns, where NGOs combined cleanliness with cultural performances to attract pilgrims (Mishra et al., 2021). The Brijghat case underlines how cultural expression (nukkad natak, poetry) combined with ecological action (clean-up, plantation) resonates with local populations by appealing to both rational and emotional consciousness.

Plantation and Biodiversity Conservation

The plantation of 15 saplings with QR codes demonstrates a novel integration of digital technology with conservation

awareness. Similar initiatives in Rishikesh have used barcoding and placards for tree identification, but QR tagging adds interactivity and accessibility (Kumar & Singh, 2020).

Although the scale of plantation was modest, the vendor adoption of sapling care indicates sustainability potential. Community stewardship has been identified in literature as a critical determinant of plantation survival, often more important than the number of trees planted (Bhattacharya, 2020).

Challenges Observed

Despite the successes, several challenges were noted

- **Resource Limitations:** The availability of gloves (35) and masks (35) for 57 participants indicated some gaps in preparedness.
- **Limited Community Participation:** Although there was local engagement, certain community members' lack of awareness and motivation makes it difficult for them to continue participating after the event day.
- **Behaviour Change and Mindset Barriers:** Changing long-standing habits related to waste disposal and pollution requires continuous efforts, which is difficult to achieve with a small number of initiatives.
- **Waste Disposal:** While solid waste was collected, its final disposal was not systemically managed, reflecting a need for coordination with municipal bodies.
- **Sustainability of Efforts:** Plantation survival and continued cleanliness depend on long-term monitoring, which is resource-intensive.
- **Scale of Impact:** Compared to mechanized surface cleaning under Namami Gange, the scale of manual collection remains small.
- **Coordination among Stakeholders:** Different priorities and communication gaps can make it difficult for local communities and government agencies to coordinate effectively.

Comparative Insights

When compared to larger projects

- **Haridwar Clean-up Drives (2021-22):** Focused on pilgrim management and mechanized cleaning, engaging thousands but often lacking follow-up.
- **Varanasi Assi Ghat Campaigns (2019-20):** Combined art, music, and ecological action, achieving strong cultural resonance but limited plantation efforts.
- **Yamuna Action Plan (Delhi, 2018-22):** Focused on sewage treatment and infrastructure, but less emphasis on grassroots awareness.
- **The Brijghat drive bridges a gap by combining awareness + plantation + cleanliness, providing a holistic model at micro-level scale.**

Broader Implications

The Brijghat case has implications for

- **Policy:** Integrating university-led initiatives as recognized partners in Namami Gange.
- **Education:** Embedding experiential learning modules (fieldwork, community service) into environmental curricula.

- **Community Development:** Strengthening eco-religious connections to foster behavioral change.
- **Sustainability:** Encouraging vendor adoption and QR-based educational tools for ongoing stewardship.

CONCLUSION

The Brijghat Ganga Cleanliness and Awareness Drive conducted on 10th October 2024 highlighted the important role of public participation, academic institutions, and environmental awareness in endorsing river conservation for sustainable development. By joining cleanliness activities, plantation drives, and awareness campaigns, the initiative effectively addressed multiple aspects of environmental stewardship and encouraged collective responsibility toward protecting the Ganga River ecosystem.

A major highlight of the program was its direct environmental impact, with nearly 140–150 kg of waste removed from the riverbank area and fifteen QR-tagged saplings planted to support eco-restoration and biodiversity conservation. The use of QR-code technology addressed a groundbreaking educational dimension by providing information on plant species and their ecological significance.

The inventiveness also generated significant social and educational benefits by reaching over 300 individuals through rallies, street plays, poetry recitations, and interactive campaigns. These activities enhanced awareness regarding cleanliness, waste management, and environmental protection while strengthening community engagement. Students gained valuable experiential learning opportunities that helped develop practical skills, leadership, teamwork, and environmental responsibility.

Furthermore, the achievement of the programme linked environmental conservation with the cultural and spiritual status of the Ganga River, thereby strengthening public participation and ecological commitment. Overall, the Brijghat initiative serves as an effective model of community-based river conservation and demonstrates how collaborative efforts can contribute meaningfully to ecological restoration, environmental awareness, and sustainable development.

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AUTHOR CONTRIBUTION

G.D. Bhatt conceived and supervised the study, designed the methodology, and finalized the manuscript. Lochan Vyas coordinated field activities, data collection, and community interactions. P.K. Jain contributed to data analysis and interpretation. Mahesh Singh assisted in literature review and

documentation. Neha Sharma supported report preparation, formatting, and reference management. All authors read and approved the final manuscript.

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