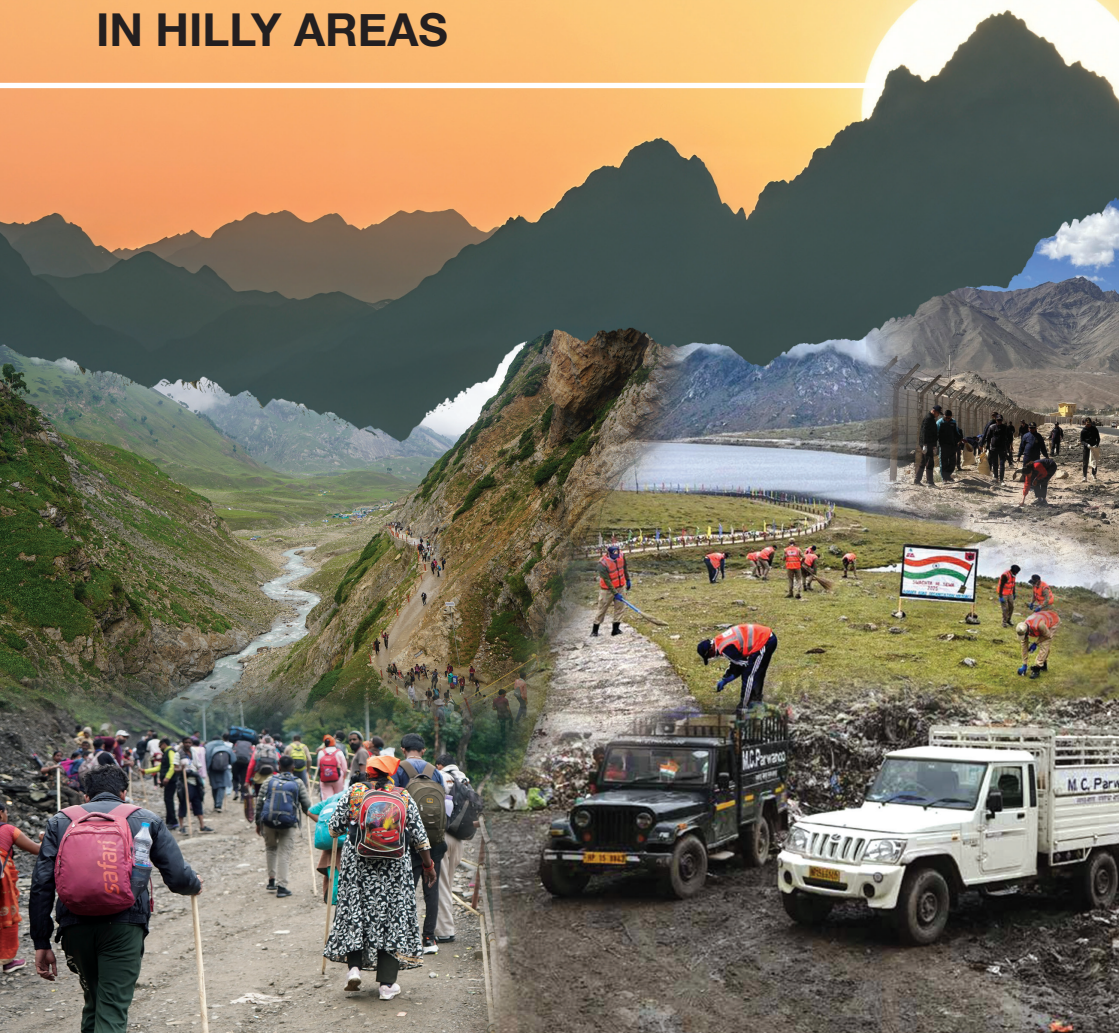
आवासन और शहरी कार्य मंत्रालय
भारत सरकार
MINISTRY OF HOUSING AND
URBAN AFFAIRS
GOVERNMENT OF INDIA

सत्यमेव जयते

स्वच्छ भारत
एक कदम स्वच्छता की ओर

# MOUNTAINS OF CHANGE:

## TRANSFORMING WASTE MANAGEMENT IN HILLY AREAS

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# INDEX

## Assam

# Water Hyacinth to Wealth: Northeastern States Champion Circular Economy under SBM-U

Across India's Northeastern region, community-led innovation is driving new models of circular economy and sustainable livelihood creation. With rising environmental pressures and the need for resilient income opportunities, local groups are turning natural challenges into resource-based solutions. One such transformation involves water hyacinth, an invasive aquatic weed that disrupts fishing, transport, and biodiversity across lakes and rivers in Assam.

In Borchila village of Assam's Morigaon district, a group of women turned this challenge into an opportunity. Supported by the Assam State Rural Livelihood Mission (ASRLM), they began crafting high-quality handicrafts from water hyacinth, generating sustainable livelihoods while reducing dependency on external raw materials. Today, each woman earns at least

₹10,000 per month, marking a significant step toward financial independence in a flood-prone region. Their work showcases how community-led initiatives can convert environmental threats into income-generating assets.

A parallel innovation is unfolding near Deepor Beel, Assam's only Ramsar site, where water hyacinth overgrowth poses a significant ecological challenge. Two young entrepreneurs from Guwahati, Rupankar Bhattacharjee and Aniket Dhar, recognised the plant's potential as a sustainable raw material. Through their venture Kumbhi Kagaz, they manufacture 100% biodegradable, chemical-free handmade paper from the meteka plant. The initiative, employing nearly 40 women, has earned national recognition, including the Zero Waste Cities Challenge award for advancing waste-to-wealth entrepreneurship.

Together, these initiatives reflect the Northeast's leadership in promoting circular economy practices and environmentally responsible livelihoods under the Swachhata Hi Sewa movement.

# Swachh Lakhimpur: A Model for Integrated Urban Waste Management in Assam

North Lakhimpur, Assam, has emerged as a leading example of scientific waste management under SBM-U 2.0. Years of accumulated waste and an ecologically stressed waterbody have been successfully restored through a structured, data-driven approach adopted by the North Lakhimpur Municipal Board.

A major milestone was the remediation of 79,000 MT of legacy waste from the Chandmari dumpsite—an area that had impacted nearly 70,000 residents for over four decades. Through a dedicated Legacy Waste Treatment (LWT) Plant, the city freed 16 bighas of land from waste heaps, with an additional 10 bighas now planned for development as an Urban Forest and Urban Retreat Zone. This intervention also revived the nearby Sumdiri River, allowing birds, fish, and aquatic species to return after years of ecological decline.


To strengthen ongoing solid waste management, the city generates 36–42 TPD of municipal waste, which is now processed through modern systems. At Japisajia, an integrated Material Recovery Facility (MRF) and Waste-to-Compost (WTC) Plant has been established—Assam's first centre offering recycling, scientific segregation, and composting at one location.

The MRF operates with a 100 TPD capacity across 7,000 sq. ft, enabling systematic sorting and channelization of recyclables into the circular economy. Complementing this, the WTC Plant processes 25 TPD of wet waste, producing organic compost that supports local farmers and generates revenue for the municipal board.

Swachh Lakhimpur stands as an exemplary model for urban Assam—demonstrating how legacy waste clearance, integrated processing facilities, and ecological restoration together create sustainable, clean, and resilient cities.

# Eco-Enterprise in Assam: SHG Women Turn Waste into Livelihoods

A Self-Help Group of 10 women in Assam is converting an ecological challenge into a sustainable livelihood opportunity—transforming an invasive plant into a pathway to empowerment. The Lakhyajyoti Self-Help Group (SHG), formed in July 2016, comprises 10 urban poor women from Ward No. 08, Amolaptty. Seeking economic stability, they registered under the Deendayal Antyodaya Yojana–National Urban Livelihoods Mission (DAY-NULM), which became the turning point in their journey. After registration, the group received training in management and bookkeeping, preparing them to operate as a structured

The group received a revolving fund of INR 10,000 from DAY-NULM, supplemented by INR 15,000 from the Government of Assam.

enterprise. Recognising the abundance of water hyacinth in Nagaon's waterlogged areas, the Assam State Urban Livelihoods Mission (ASULMS) identified it as a viable raw material for income generation. The SHG members underwent two intensive seven-day training sessions to learn how to convert this otherwise harmful plant into value-added products.

Their new skills enabled them to craft eco-friendly items such as bags, mats, baskets, and decorative pieces. Once they successfully completed the grading process, the group received a revolving fund of INR 10,000 from DAY-NULM, supplemented by INR 15,000 from the Government of Assam. This financial support helped them procure materials and begin production. Today, their products are sold both locally and on online platforms like Flipkart, expanding their market reach. The initiative not only promotes a circular economy by converting an invasive species into useful products but also helps restore ecological balance by reducing water hyacinth growth. Most importantly, it has transformed the lives of the members, who now earn INR 10,000–15,000 per month, significantly improving their socio-economic well-being.

# Sivasagar's SHG-Driven Vermicomposting for Urban Sustainability

The Mulagabhoru Area Level Federation (ALF), under the Assam State Urban Livelihoods Mission (ASULMS) in Sivasagar, has implemented a notable vermicomposting initiative designed to address waste management challenges while creating livelihood opportunities for women Self-Help Group (SHG) members. By converting organic waste into high-quality vermicompost, the initiative promotes circular economy principles and supports local economic development.

The ALF leads door-to-door waste collection, source segregation, and public awareness activities on hygiene, plastic waste reduction, and composting. In Sivasagar Municipal Board, these efforts have significantly improved household

participation in waste segregation and home composting practices. An MoU with the Municipal Board now enables formalised waste collection services for nearly 1,000 households.

Launched in 2019 with support from the Sivasagar Municipal Board, NULM, and SBM(U), the "Vermicompost Project" produces approximately 360 quintals of compost annually, generating about ₹9,00,000 in revenue. A dedicated Material Recovery Facility (MRF) enhances segregation efficiency and furthers waste minimisation and resource recovery.

The initiative has heled to reduce waste, cut emissions, and improve soil health while strengthening women's incomes and leadership. SHG members also earn through sales of vermicompost and related products.

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# Tezpur: Women at the Heart of Waste Reduction

In the heritage town of Tezpur, managing waste efficiently had long been a challenge due to limited manpower, space constraints, and rising urban pressures. Instead of allowing these hurdles to slow progress, the Tezpur Municipal Board turned to the strength of community partnerships. Their collaboration with Tezpur Mahila Samiti — one of the city's oldest and most trusted organisations, established in 1921, laid the foundation for an innovative, people-centric solution.

In February 2024, the two institutions jointly launched a permanent RRR (Reduce, Reuse, Recycle) Centre within the Samiti campus. Designed as a welcoming and organized space, the centre accepts gently used clothes, books, toys, footwear, and household items from citizens. These donations are carefully sorted and redistributed to families who need them most. What sets this centre apart is its commitment to dignity and care, with dedicated personnel managing distinct sections to ensure a smooth and respectful experience

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for beneficiaries.Since its inception, community participation has been remarkable. More than 4,000 items have been donated, and over 3,050 have already reached new homes. These numbers reflect not just resource recovery but the generosity of Tezpur's residents and the trust the initiative has built within the community.

For Tezpur, the permanent RRR Centre represents far more than a waste reduction effort. It stands as a powerful example of collaboration, compassion, and responsible urban living. By blending heritage, civic leadership, and women-led community engagement, the town is redefining sustainable waste practices and inspiring others to follow suit.

# Tea City Dibrugarh Brewing Change Through RRR

Known as the "Tea City of India," Dibrugarh has always embraced change — and its newest step toward sustainability is no exception. As part of its broader solid waste management reforms, the Dibrugarh Municipal Corporation has launched a permanent RRR (Reduce, Reuse, Recycle) Centre that encourages citizens to rethink what they consider waste. Designed as more than a drop-off point, the centre serves as a community space that promotes mindful consumption and resource recovery.

Strategically located in the heart of the city, the RRR Centre welcomes reusable household items, with a special focus on supporting urban poor communities. By making these essentials accessible, the Corporation is helping bridge gaps in affordability and need. A key aspect of the initiative is the integration of informal waste pickers into the system, a recognition of their long-standing contributions to the city's waste value chain and an effort to strengthen their livelihoods.


The Dibrugarh Municipal Corporation has launched a permanent RRR (Reduce, Reuse, Recycle) Centre that encourages citizens to rethink what they consider waste.

"The idea is simple," shared a Corporation official. "Residents must realise that what they discard could meet another person's daily needs. The RRR Centre turns that possibility into reality." This vision has helped position the centre as a symbol of shared responsibility and compassion.

Early results are promising. Daily waste volumes are reducing, and partnerships with local NGOs are enabling better tracking of the initiative's social impact. To date, the Corporation has redistributed 5,325 items to households in need, demonstrating how small, community-led actions can create meaningful change. Dibrugarh's RRR Centre is not just managing waste, it is nurturing a more conscious, inclusive, and sustainable urban future.


# Jiribam Leads the Way: Transforming Freezers and Glass Bottles into Sustainable Solutions

Jiribam Municipal Council in Manipur has introduced an innovative waste management initiative that transforms discarded materials into valuable community assets. With a focus on sustainability, circular economy practices, and citizen participation, the council has repurposed old freezers into plastic banks and reused glass bottles for beautification and functional construction across the town.

To strengthen responsible waste disposal, Jiribam Municipality has been conducting dedicated waste collection drives and offering

permanent drop-off points for residents and businesses. These efforts ensure the safe handling of electronic waste, which often goes unmanaged in small towns. As a creative extension of this initiative, discarded freezers have been redesigned as plastic banks, encouraging households to segregate and deposit plastic waste for recycling.

The impact has been significant: a noticeable reduction in glass waste, minimized plastic pollution, and visibly improved public spaces.

Glass waste, another frequently overlooked category, has also been given renewed purpose. Glass bottles are now being repurposed to enhance public spaces—used as attractive garden borders in parks and even as construction material. One of the standout outcomes is a changing room for women sanitary workers, built entirely using repurposed glass bottles, offering both functionality and aesthetic appeal.

By integrating recycling and reuse into everyday systems, the initiative reflects the core principles of a circular economy—extending the lifecycle of materials and reducing the pressure on landfills.

The impact has been significant: a noticeable reduction in glass waste, minimized plastic pollution, and visibly improved public spaces. The project has also strengthened community participation, increased awareness of recycling, and improved facilities for sanitary workers, all while generating cost savings in waste management through efficient resource utilization.

# Eco Network Manipur: A Community-Driven Model for Waste Management

Manipur has been strengthening sustainable waste management through decentralised systems, community-led segregation, plastic recovery, and river-cleaning efforts. Among these initiatives, Eco Network Manipur stands out as a strong example of how local participation and innovation can drive effective environmental management.

The organisation works extensively in riverbank settlements where waste accumulation—plastic bottles, wrappers, bags, and household refuse—had severely polluted natural waterways. To address this, Eco Network Manipur was launched as a structured, community-driven movement aimed at restoring rivers and establishing responsible waste practices.

The initiative began with the River Rejuvenation Campaign, a volunteer-led effort focused on

manually cleaning riverbanks. Despite limited resources, the campaign succeeded due to strong community involvement. However, the organisation soon recognised that long-term impact required tackling waste generation at its source.

Eco Network Manipur therefore introduced a door-to-door waste collection system, operated by youth volunteers and Self-Help Groups (SHGs). Households were trained to segregate waste before disposal, while volunteers further sorted recyclables and organic waste at collection points. A central component of the initiative is the Waste-to-Wealth model, under which recyclable materials are sold to compression centres. This creates a steady income stream

Eco Network Manipur therefore introduced a door-to-door waste collection system, operated by youth volunteers and Self-Help Groups (SHGs).

for volunteers, SHG members, and the organisation, empowering local women and youth. Partnerships with NGOs have helped strengthen recycling networks, enhance awareness, and increase community engagement. As a result, river pollution has decreased, income opportunities have expanded, and environmental responsibility has become a shared community value. Eco Network Manipur demonstrates how collective action can transform waste management in Manipur.

# Amarnath Yatra Goes Zero Waste- 2025

**Backed by 100% waste processing, robust sanitation network and round-the-clock cleaning support, the 2025 Amarnath Yatra saw over four lakh pilgrims.**

The Amarnath Yatra 2025 demonstrated how a large-scale religious event can implement scientific, zero-landfill waste management. With over 4 lakh pilgrims undertaking the high-altitude journey, the Shri Amarnath Ji Shrine Board and the Jammu & Kashmir Government implemented a structured action plan aligned with Swachh Bharat Mission Urban 2.0.

Daily waste generation during the Yatra averaged 11.67 MT, comprising 3.67 MT dry and 7.83 MT wet waste, all of which was 100% processed. Wet waste from langars and lodgement centres in Jammu was treated through three 1-ton Organic Waste Composters, while dry waste was channelled to nearby Material Recovery Facilities. Along the route, 1,016 twin-bin stations (blue for dry, green for

wet) enabled source segregation, supplemented by dedicated sanitary waste bins near female toilets.

A fleet of 65 garbage collection vehicles, including twin-compartment trucks, ensured segregated transport. To maintain 24x7 cleanliness, 1,300 SafaiMitras were deployed across camps, langar sites, toilets, and halting points.

A strong push against single-use plastics led all langars to eliminate SUPs completely. Over 15,000 jute and cloth bags were distributed through 30+ kiosks, supported by behaviour-change activities such as Plastic Lao, Thela Lejao and Bin It, Win It.

Toilets were strengthened with 1,600+ mobile units, cleaned twice daily. QR-coded feedback generated 20,000+ responses, enabling real-time service improvement. Faecal waste was evacuated through 39 de-sludging vehicles, achieving 100% FSTP treatment.

Public participation remained high through the Green Pledge campaign, with 70,000+ devotees committing to responsible practices.

The 2025 Yatra set a national benchmark for sustainable pilgrimages—proving that disciplined systems, strong monitoring, and citizen engagement can deliver a truly zero-waste experience.


# From Classrooms to Clean Campuses: How J&K Is Training Youth in Responsible Waste Management

Jammu & Kashmir is setting a new benchmark in institutional sustainability with its ambitious Green Campus Initiative under SBM-U 2.0. The programme represents a determined push to embed environmental consciousness across the Union Territory. What sets it apart is its strong local ownership— the Housing and Urban Development Department spearheaded the certification of 1,093 campuses, supported by a decentralized network where all 80 Urban Local Bodies audited and guided institutions across 20 districts.


The initiative brought all major bulk waste generators into its ambit, identifying 1,057 campuses, including government offices, hospitals, restaurants, parks and other high-footfall institutions. Its three-phase approach—Identification, Preparatory and Declaration—drove systematic change. Campuses now track and segregate waste, compost wet waste on-site, and strictly enforce a ban on single-use plastics, with students and staff adopting reusable alternatives as part of a wider cultural shift.

Sanitation improvements were equally significant, featuring gender-specific toilets, strict cleanliness standards, sanitary waste bins, and installation of incinerators and vending machines. Institutions also created 'Waste to Art' corners and green spaces using recycled materials. During the Declaration Phase, campuses submitted Letters of Commitment, completed self-evaluations and underwent field verification, earning certification only if they scored above 75%. Anantnag became the first ULB to declare all its campuses Green, and strong IEC efforts have since fostered lasting sustainable practices across J&K's institutional ecosystem.


# Shopian Shows the Way with Modern, Community-Driven Waste Management

Shopian, a small town in Jammu and Kashmir, long struggled with unmanaged waste, with nearly 2,880 tonnes of municipal waste dumped in open areas each year, posing serious health and environmental risks. To tackle this, the Municipal Council launched a modern Solid Waste Management (SWM) plant in 2023 with a capacity of 4 tonnes per day.

The system introduced door-to-door segregated waste collection using a fleet of 10 vehicles and adopted scientific processing methods. At the plant, dry waste is treated through convey-or belts, shredders, and balers, while wet waste is managed through pit composting, produc-ing certified compost within 45 days.


To ensure sustainability, the initiative, built market linkages with registered dealers for selling recyclables, generating revenue and reducing the burden on landfills.

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The Waste-to-Wonder initiative now stands as a model for other towns in Jammu and Kashmir, demonstrating how modern waste treatment technologies paired with community participation can deliver effective and sustainable urban waste management.

# Waste-to-Energy Innovations in Uttarakhand: Rudrapur and Mussoorie Lead the Way

Uttarakhand's urban local bodies are adopting advanced waste-to-energy systems to address rising municipal waste and reduce environmental pressure. Rudrapur Municipal Corporation and Mussoorie Municipal Council have implemented scientific waste processing models that convert waste into clean energy and organic fertilizer, demonstrating a forward-looking approach to urban waste management.

Rudrapur generates 105–118 MT of municipal solid waste per day, creating an urgent need for sustainable solutions. To meet this challenge, the city has established a 50 TPD Compressed Biogas (CBG) Plant, developed under a PPP model in November 2022. The facility currently processes around 10 TPD of wet waste, producing 34,000–38,000 cubic metres of biogas per month, which is used to generate 6 KW electricity. The plant has the capacity to process up to 50 TPD, and at present 30 TPD is utilised for energy production and for manufacturing “Kalyani” organic fertilizer. This initiative supports scientific waste disposal, reduces landfill dependency, and contributes to a circular urban economy.

Mussoorie Municipal Council has introduced a similar model with its 8 TPD Bio-Methanation Plant, also operating on a PPP framework. The plant processes wet waste to produce biogas and high-quality compost, offering a sustainable waste management solution for the hill station, where waste generation is amplified by tourism.

Together, the waste-to-energy plants in Rudrapur and Mussoorie demonstrate how ULBs can integrate scientific waste processing, renewable energy generation, and resource recovery. These projects strengthen environmental resilience, reduce landfill burden, and create replicable models for cities across India transitioning toward sustainable and energy-efficient waste systems.


# Youth for Swachhata: Uttarakhand's Green Gurukul Paving the Way

Uttarakhand-based NGO Waste Warriors is transforming environmental education through its flagship initiative, Green Gurukul—a structured program designed to embed waste literacy and responsible habits among youth. In line with SBM-U 2.0's vision of empowering youth as drivers of the Jan Andolan for Swachhata, the program actively engages students in city sanitation and environmental action. Now operational in 100+ schools across Uttarakhand and Himachal Pradesh, Green Gurukul has already reached 40,000+ students, equipping them with practical knowledge and a deep understanding of sustainable waste management.

Green Gurukul integrates waste-related learning directly into the school ecosystem for students of Classes 6–12. Its core objective is to foster long-lasting behavioural change among students and


educators while ensuring compliance with the SWM Rules, 2016. The program emphasizes crucial practices such as source segregation, proper waste disposal, and the principles of reduce, reuse, recycle—empowering schools to adopt affordable and sustainable waste systems.

Through engaging, hands-on methods, the program makes Swachhata learning both fun and meaningful. Students take part in interactive sessions, film screenings, games, quizzes, skits, and creative workshops where they design posters, upcycle materials, and create eco-crafts—building innovation and solution-focused thinking. Tools like Kacharavan street plays, awareness talks, and specially designed games such as Snakes & Ladders – Waste Edition and Fun with Trash further simplify complex concepts through play. By encouraging students to carry these lessons into their homes and communities, Green Gurukul is shaping a generation committed to sustainability and a cleaner, greener future.

# Transforming the Hills: Kirtinagar Champions Waste Management

Kirtinagar in Uttarakhand is emerging as a strong example of effective waste management in hilly regions. Faced with steep terrain, wildlife movement, and difficult transport conditions, the town has adopted practical and innovative solutions. Its Waste Processing and Disposal Facility, operational since January 2023, showcases how customised systems can successfully ad-dress the environmental challenges of mountain ecosystems.

Today, the facility processes five tons of solid waste every day and stands as the first of its kind in Uttarakhand's hilly areas under the Municipal Solid Waste Rules, 2016.


The facility was developed with a clear understanding of the region's constraints - steep slopes, challenging movement of materials, and regular wildlife presence. To overcome these, the project introduced pioneering interventions such as aerobic composting pits and a well-structured Material Recovery Facility (MRF), making it well-suited to operate in Uttarakhand's hilly terrain.

Construction was demanding and required precise step-cutting, careful transport of liners, and constant vigilance due to recurring landslides and limited water availability. Worker safety concerns and a shortage of local labour further added to the complexity. Despite these hur-dles, the project was completed in just seven months and became fully operational on 11 Jan-uary 2023, marking a significant achievement for the region.

Today, the facility processes five tons of solid waste every day and stands as the first of its kind in Uttarakhand's hilly areas under the Municipal Solid Waste Rules, 2016. By strengthen-ing the town's waste management system and ensuring sustainable processing in challenging terrain, the initiative has delivered a measurable impact. Its success was recognised national-ly, earning Kirtinagar a Silver Award at the 2024 Skoch Awards.

# Joshimath's Community-Led Waste Management Model

Joshimath, Uttarakhand, a gateway to major Himalayan treks and revered pilgrim sites, experi-ences a significant seasonal population surge that puts immense pressure on its fragile envi-ronment. To address the growing challenge of plastic waste, the Nagar Palika Parishad, with strong community participation, established a Material Recovery Facility (MRF) in 2010. De-spite the town's difficult terrain, the MRF has created a structured system for

Beyond operational achievements, the sustained efforts of the MRF have reduced litter, in-creased environmental awareness, and boosted municipal resources.


waste collection, segregation, and compaction.

One of the most notable impacts of this initiative has been on livelihoods. The sanitation workforce, which began with just seven workers earning ₹250 per day, has expanded into a larger, better-supported team earning ₹550 per day. This growth reflects both the operational suc-cess of the MRF and its positive influence on the local community.

Since December 2022, the facility has processed over 1.3 million kilograms of inorganic waste, generating more than ₹1 crore in revenue through the sale of recyclable materials. The Tourism Department has strengthened these efforts by providing a compactor capable of compressing 150 kg per bundle, enhancing efficiency and improving the quality of waste processing.

Beyond operational achievements, the sustained efforts of the MRF have reduced litter, in-creased environmental awareness, and boosted municipal resources. The initiative has also empowered marginalised workers by providing stable jobs in a challenging hill environment. Recognised with the Chief Minister Nirmal Nagar Excellent Puraskar in 2010–11 and 2016–17, Joshimath today stands as a model for waste-smart, environmentally conscious hill towns.


# Rudrapur's Green Revival: Transforming a Dumpsite into a Thriving Oasis

Rudrapur, Uttarakhand, has turned a long-standing dumpsite near the National Highway, once a symbol of environmental degradation, into a functional green space through an ambitious remediation effort under Swachh Bharat Mission 2.0.

Confronted with 211,000 metric tonnes of legacy waste, the Nagar Nigam adopted biomining and bioremediation techniques to separate recoverable materials, treat contaminated soil, and safely contain residual waste in an engineered landfill with advanced liners. This approach en-sured long-term environmental safety while preparing the land for productive use.


Despite initial community scepticism, sustained engagement and transparent communication helped build confidence in the project. Between December 2020 and May 2024, the site was fully remediated across three phases and redeveloped into a vibrant green area that reduces pollution, eases congestion near the highway, and provides much-needed public space.

Rudrapur's transformation demonstrates how innovation, strong institutional coordination, and community participation can convert environmental hazards into valuable urban assets, setting a compelling benchmark for cities undertaking legacy waste remediation.

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# Women-Led Sakhi SHG Drive Sustainable Waste Solutions in Bageshwar

In Bageshwar, Uttarakhand, the women of the Sakhi Autonomous Cooperative Society have led a quiet yet transformative revolution in waste management. The town, with just over 2,500 residents across 11 wards, struggled with waste disposal due to hilly terrain that limited the use of conventional garbage vehicles and a shortage of human resources. In 2017–18, under the National Urban Livelihood Mission (NULM) and in partnership with Nagar Palika Parishad Bageshwar, an innovative solution emerged.

The women of the Sakhi group took on door-to-door garbage collection, carrying mixed waste across challenging terrain, while educating households on the importance of separating wet and dry waste. Their efforts not only improved

cleanliness but also redefined societal attitudes toward women performing labour-intensive roles traditionally stigmatized in the community.

> Once referred to as “Kudawali” (garbage women), the Sakhi SHG members are now celebrated local figures, honoured nationally and on International Women’s Day.

The initiative quickly gained momentum. As streets became cleaner and disease prevalence reduced, the number of women involved grew from 18 to 47, with two promoted to supervisory roles, reflecting progress in gender equality. Earning Rs 100 per day, these women gained financial independence while transforming the town’s waste management practices.

The success of the program earned Bageshwar recognition in Swachh Survekshan 2019 and accolades from the National Institute of Urban Affairs. Once referred to as “Kudawali” (garbage women), the Sakhi SHG members are now celebrated local figures, honoured nationally and on International Women’s Day. Their story demonstrates how community-led, women-driven initiatives can tackle environmental challenges while empowering marginalized groups and fostering societal change.


# Dehradun's Innovative Sanitation Park

Established in 2019 in Nathuawala, Dehradun's "Sanitation Park" is being operated jointly by the Dehradun Nagar Nigam and the Feedback Foundation Charitable Trust. The facility was launched as part of a pilot programme with the ambitious goal of achieving "No open waste" in the community. Initially, local residents resisted the idea of a waste processing facility in their neighbourhood.

Through persistent advocacy, dialogue, transparency, and active community involvement, the project team gradually gained public support. A key innovation was the allocation of part of the facility's land as a recreational space, now serving as a playground for children and seamlessly integrating community well-being with utility.

The Sanitation Park is divided into eight dedicated zones, each handling a specific type of waste: e-waste, construction and demolition waste, domestic biomedical and hazardous waste, recyclables, non-recyclable dry


waste, and composting, supported by around ten compost pits. Serving roughly 3,500 households, institutions, and shops, the facility operates a door-to-door collection system, ensuring waste is segregated at the source into wet, dry, hazardous, and biomedical categories. Biodegradable waste is converted into nutrient-rich compost, while recyclables generate approximately Rs 35,000 in monthly revenue, and less than 5 percent of waste ends up in landfills.

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Beyond processing waste, the project actively educates the community through clean-up drives, Swachhta rallies, experiential learning seminars, and awareness campaigns, fostering a culture of responsible waste management and inspiring citizens, especially the youth, to participate in creating a cleaner, healthier city.

# From Garbage to Glory: Baini Sena's Women Lead Haldwani's Clean-Up Drive

In Haldwani, the largest city in Uttarakhand's Kumaon region, the "Baini Sena" initiative has redefined urban waste management while empowering women. Named after the Kumaoni term "Baini," meaning sister, the program harnesses the power of women's participation in civic governance. Prior to the initiative, the city faced significant sanitation challenges: a short-age of human resources, limited monitoring of sanitation work, inadequate grievance redressal systems, and low citizen engagement. Monthly user charge collections hovered around Rs 6 lakhs, reflecting systemic inefficiencies and insufficient public involvement in waste manage-ment.

In October 2022, the Haldwani Municipal Corporation partnered with women's self-help groups (SHGs) registered under the DAY-NULM scheme to manage and monitor sanitation comprehensively. By November, trained SHG members were actively

managing designated wards, conducting door-to-door waste collection, promoting segregation, and raising aware-ness about single-use plastic bans.

A control room has been established to handle grievances and ensure smooth operations. Through consistent engagement and reliable service has delivery, the Baini Sena earned the community's trust.

A control room was established to handle grievances and ensure smooth operations. Through consistent engagement and reliable service delivery, the Baini Sena earned the community's trust. The impact was transformative: user charge collections jumped from Rs 6 lakhs to Rs 32 lakhs, each SHG member earned an average of Rs 14,000 per month, and waste collection coverage reached 85 percent of households.

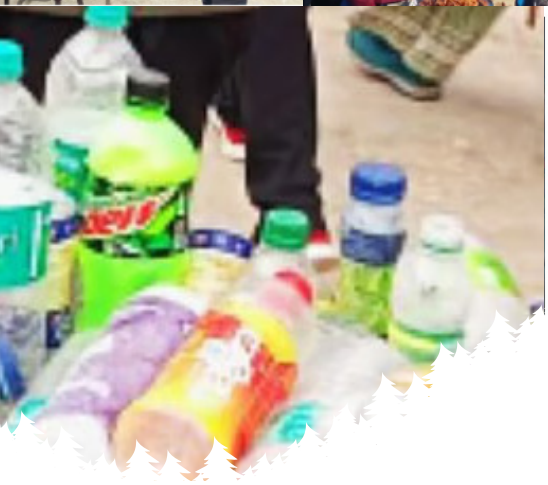
Beyond financial gains, the initiative strengthened urban cleanliness, fostered sustainable waste practices, and established a replicable model of women-led governance, demonstrating how civic participation can simultaneously improve public services and empower marginalized groups.

# Sustainable Pilgrimage: Kedarnath Fights Plastic Waste with Digital Refund System

Kedarnath, one of the four revered Char Dham shrines, faces acute waste management challenges each pilgrimage season. With lakhs of pilgrims arriving daily, plastic waste surges sharply, often overwhelming existing infrastructure. During peak season, waste generation reportedly exceeded 1,500 tonnes per day, underscoring the need for an efficient, scalable solution.

To address this, the Uttarakhand Government introduced the Digital Deposit Refund System (DRS) in Kedarnath in May 2022 in partnership with Recykal. The system encourages responsible disposal through a refundable ₹10 deposit on plastic bottles and multilayered plastics (MLPs). Each product carries a Unique






Serialised Identification (USI) QR code, enabling tracking from purchase to return. Pilgrims can deposit used items at designated collection points or at two Reverse Vending Machines (RVMs) installed at Gaurikund and the Kedarnath temple premises, receiving instant UPI refunds. The machines—designed and manufactured in India—sort up to two containers per second and use anti-spoofing detection to ensure authenticity.

Returned items are transported to Material Recovery Facilities (MRFs) for recycling, creating a streamlined, traceable waste value chain. The pilot's success led to expansion across Gangotri, Yamunotri, and Badrinath, with nearly 30 lakh USI codes distributed. To date, the system has recycled over 20 lakh plastic bottles, prevented 66 MT of $CO_2$ emissions, created 110+ jobs, and increased informal waste workers' earnings by 37.5%, establishing DRS as a transformative model for sustainable pilgrimage management.

To date, the system has recycled over 20 lakh plastic bottles, prevented 66 MT of $CO_2$ emissions, created 110+ jobs, and increased informal waste workers' earnings by 37.5%

# Strengthening Circular Economy: Gangtok's RRR Centre Leads Textile Waste Management

The Gangtok Municipal Corporation (GMC) has established a RRR Centre at Deorali to address the growing challenge of textile waste entering natural water bodies and contributing to environmental degradation. Although awareness activities were undertaken in the past, improper disposal of textiles by citizens remained a persistent concern. The RRR Centre was conceptualised to provide a structured system for

Scrap dealers play an essential role in ensuring that items collected are channelled back into the economy through reuse and recycling streams.

the collection, reuse, and recycling of discarded materials, thereby reducing pollution and promoting responsible waste practices. Key stakeholders in this initiative include the Gangtok Municipal Corporation, local citizens, and registered scrap dealers.

Inaugurated on 24 June 2024, the RRR Centre offers a dedicated drop-off point where residents can deposit reusable items such as clothes, books, and fabric. GMC oversees the collection process and collaborates with authorised scrap dealers for the transportation of materials outside Sikkim for recycling, given the absence of in-state processing facilities. Additionally, regular collection drives across all wards have been institutionalised to ensure widespread public participation and sustained engagement.

The initiative supports sustainable consumption patterns by extending the lifecycle of products and lowering the demand for virgin raw materials. Scrap dealers play an essential role in ensuring that items collected are channelled back into the economy through reuse and recycling streams.

In terms of its impact, the initiative diverts significant quantities of waste away from landfills, reducing the environmental burden, while fostering a culture of reuse and responsible disposal among citizens.


# Mangan's Model for Smart, Sustainable Waste Management in Sikkim

Mangan, a small Nagar Panchayat in Sikkim with a population of around 6,000, has become a benchmark for solid waste management under Swachh Bharat Mission 2.0. By combining community engagement, innovative strategies, and a strong focus on sustainability, Mangan has set an example for urban local bodies across Sikkim and the northeastern region.

A standout initiative is the PET shredding machine installed at Mangan Bazaar in September 2021, the first of its kind in the state. This facility allows residents to process plastic bottles into smaller flakes, reducing plastic waste volume by 85 percent and significantly lowering the town's plastic footprint.

Beyond plastic management, Mangan has established a state-of-


the-art Material Recovery Facility (MRF) with a capacity of 5 tonnes per day, efficiently converting municipal waste into recyclable materials and high-quality compost, which is sold to the public, generating revenue for the Nagar Panchayat. The town also operates a Reduce, Reuse, Recycle (RRR) centre, en-abling citizens to donate surplus items and further minimize waste. Household participation is encouraged through the “3 Bin, 1 Bag” segregation system, and two wards have been de-clared “Zero Wet Waste” zones, reflecting Mangan’s goal of achieving 100 percent source segregation by 2025. These combined efforts have earned Mangan recognition as the cleanest ULB in Sikkim and the second cleanest in the northeast, receiving multiple awards in 2022 and 2023. Mangan’s holistic approach demonstrates how technology, citizen engagement, and in-novative practices can transform small towns into models of sustainable urban waste management.

Mangan’s holistic approach demonstrates how technology, citizen engagement, and innovative practices can transform small towns into models of sustainable urban waste management.

# Guardians of the Sacred Lake: The Tsomgo Cleanliness Movement in Sikkim

Perched at nearly 12,000 feet, Tsomgo Lake is one of Sikkim's most treasured natural wonders and the Tsomgo Pokhri Sanrakshan Samiti (TPSS) has emerged as its steadfast guardian. Driven by a deep sense of community ownership, the TPSS has built an impressive model of lake conservation that blends waste management, awareness, and sustainable tourism. From managing daily waste generated by visitors to educating tourists about ecological sensitivity, the Samiti ensures that the serenity of this high-altitude lake remains undisturbed.

With 52 shops operating around the lake, TPSS has put in place a structured waste collection system, ensuring that all waste is transported to a designated recovery centre. Dedicated staff are employed to clean the

surroundings, including yak excrement—a challenge unique to the region's tourism ecosystem. Over the years, the Samiti has also carried out major clean-up drives, removing accumulated waste from the lake and its wetlands. Practical measures like banning cup noodles and providing garbage bags to drivers have significantly reduced littering.

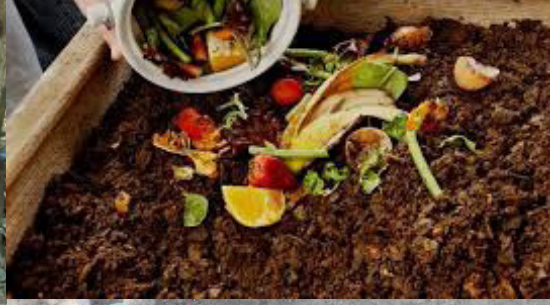
A conservation fee collected from tourists funds regular maintenance, lake guards, and community capacity-building initiatives. TPSS runs awareness campaigns on environmental protection, urging visitors to avoid plastic bottles and respect the fragile alpine landscape. Their efforts extend beyond tourists—local vendors and residents are trained to adopt sustainable practices that protect the lake's ecology.

Working closely with the state government, NGOs, and the local community, TPSS has even relocated a commercial complex away from a sensitive wetland zone. Today, Tsomgo Lake is celebrated as one of India's cleanest tourist sites, with TPSS receiving multiple national awards for its remarkable stewardship.

# Aizawl Municipal Corporation's Home Composting Drive: An Economic and Environmental Intervention

The Aizawl Municipal Corporation (AMC) has implemented a structured home composting initiative aimed at reducing the city's organic waste burden and promoting sustainable waste practices at the household level. The programme adopts a multi-stakeholder approach by working closely with farmers, 85 Local Councils, community groups, and self-help groups (SHGs) to encourage residents to compost biodegradable waste at home. This reduces pressure on municipal waste collection systems while strengthening local resource recovery mechanisms.

Under the initiative, organic waste collected from households is shredded to reduce particle size and processed through windrow composting, a controlled decomposition method that ensures adequate aeration and moisture levels for effective



To ensure the initiative's long-term success, AMC conducts regular training sessions for residents, farmers, and SHGs, equipping them with practical knowledge on composting techniques

breakdown. Once matured, the compost is screened to remove impurities, packaged in standardized units, and made available for sale at the AMC office.

To ensure the initiative's long-term success, AMC conducts regular training sessions for residents, farmers, and SHGs, equipping them with practical knowledge on composting techniques and sustainable waste management. A monitoring system further ensures that operational and sustainability targets are consistently met.

The project reinforces circular economy principles by transforming organic waste into a valuable resource, reducing greenhouse gas emissions, and supporting sustainable agriculture. Its decentralized approach strengthens local economies while reducing landfill dependency and environmental pollution. The model's adaptability makes it highly replicable for other urban local bodies, enabling cities to tailor the approach to their specific waste management needs.


# Aizawl's Adopt-a-Dustbin Movement: A Community-Led Push for Cleaner Public Spaces

Aizawl, known for its strong community spirit and well-organized civic life, has taken a significant step toward strengthening urban sanitation through its Comprehensive Plan for Municipal Solid Waste Management. As part of this effort, the city introduced the innovative Adopt-a-Dustbin Scheme, a community-driven initiative designed to deepen public participation in maintaining cleanliness. Launched on 5 June 2025, World Environment Day, by Shri K. Sapdanga, Hon'ble Minister, UD&PA, the initiative reflects the government's renewed commitment to citizen-led cleanliness and sustainable waste practices.

The Adopt-a-Dustbin Scheme invites residents, shop owners, institutions, NGOs, youth groups, and community bodies to voluntarily "adopt" public dustbins placed at strategic points across

the city. By adopting a dustbin, individuals or groups agree to maintain the area around it, ensure the dustbin is regularly emptied, and keep the space clean until waste is collected by municipal teams. This model of shared responsibility not only eases pressure on municipal services but also nurtures a deeper sense of civic duty among Aizawl's citizens.

The city has witnessed an enthusiastic response since the scheme's launch. So far, 95 public dustbins have been adopted across 75 locations, including busy markets, residential pockets, footpaths, and institutional zones. Many adopters have taken additional initiatives such as installing awareness signboards, beautifying the surroundings, and encouraging passersby to follow proper waste disposal practices, making the effort truly community-owned.

By embedding citizens into everyday sanitation activities, the Adopt-a-Dustbin Scheme has strengthened environmental stewardship and elevated the standard of public hygiene. It stands as a practical example of collaborative urban governance, demonstrating how collective action can create cleaner, well-maintained public spaces and support long-term improvements in solid waste management across Aizawl.

By embedding citizens into everyday sanitation activities, the Adopt-a-Dustbin Scheme has strengthened environmental stewardship and elevated the standard of public hygiene.


# A Smart Shift to Reuse: Aizawl's 3R Success Story

Aizawl has emerged as a leader in people-driven waste management through innovative initiatives that combine environmental responsibility with social welfare. The city's journey gained significant momentum with the launch of the Swap & Save Campaign on 19th March 2025, aimed at encouraging families and students to exchange pre-used school items such as uniforms, bags, books, footwear, and stationery. During the ten-day campaign, more than 8,000 items were collected, of which 5,200 were redistributed to families preparing for the academic year. The initiative not only reduced waste generation but also eased the financial burden on parents while reinforcing the message of responsible consumption.

Encouraged by the strong community response, the Government of Mizoram established a permanent 3R Centre at the


Government Multiutility Centre in Thakthing, Aizawl, which was formally inaugurated on 14th September 2025. The centre represents a major step towards building a circular economy by providing residents with a dedicated space to donate, exchange, and collect reusable items. Clothing, school supplies, books, toys, footwear, and household items in good condition are made available free of cost or through simple swaps.

Since its establishment, the centre has witnessed an average of more than 30 visitors daily, with over 100 items exchanged or collected each day. Economically weaker households, single-parent families, and daily wage earners form a significant portion of the beneficiaries, relying on the centre to meet essential needs without additional expenditure. This consistent footfall highlights the community's acceptance of reuse as a sustainable lifestyle practice.

Beyond redistribution, the 3R Centre has become an important hub for awareness and behaviour change, educating citizens on waste reduction and resource efficiency. By diverting reusable materials from landfills and placing them into the hands of families who need them most, Aizawl has created a model where environmental sustainability and community well-being go hand in hand, setting a benchmark for urban waste management across Mizoram.

# Transforming Waste into Impact: Dharamshala's Urban Innovation Story

Located in the hills of Himachal Pradesh, Dharamshala has addressed rising waste challenges driven by rapid urbanisation and tourism through a set of innovative measures launched by the Municipal Corporation in 2021. A major pillar of this transformation was the Clean Business Programme, which encouraged local establishments to adopt sustainable practices through weekly training and certification.

The Model Ward Programme further empowered residents to improve segregation and cleanli-ness at the neighbourhood level, supported by a dedicated Material Recovery


Facility (MRF) that strengthened recycling across the city.

Dharamshala also introduced the pioneering “Waste Under Arrest” initiative at the Lala Lajpat Rai District Correctional Home, engaging inmates in waste processing while providing them with practical skills. Together, these efforts increased segregation rates by 25 percent, re-duced road littering by 30 percent, and enabled the recycling of 100 metric tonnes of plastic, glass, paper, metal, and other materials.

“Waste Under Arrest” initiative at the Lala Lajpat Rai District Correctional Home, engaging inmates in waste processing while providing them with practical skills.

The prison initiative alone cut landfill waste by 40 per cent. Dharamshala’s multipronged ap-proach - grounded in community engagement, institutional collaboration, and behavioural in-centives - offers a strong, scalable model for effective urban waste management.

# Women Powering Change: Lamlai's Plastic Waste Revolution

Lamlai Municipal Council in Manipur has emerged as a pioneering example of how small towns can adopt innovative, community-centred approaches to tackle plastic waste while simultane-ously empowering women. Launched in 2021, Lamlai's plastic recycling initiative focuses on converting low-density polyethylene (LDPE) waste, such as discarded polybags, wrappers, and plastic bottles, into durable, eco-friendly construction materials.

At the heart of this initiative are Women's Self-Help Groups (SHGs), who manage the entire process from waste collection to production. After gathering plastic waste from households, markets, and nearby localities, the women clean, heat, and mix it with sand before moulding the mixture into high-strength paving tiles and bricks. Each tile or brick consumes 100–130 polybags or roughly 50 bottles, significantly reducing the volume of plastic entering landfills or the environment. This

circular model not only addresses the town's waste challenge but also ensures that plastic, once considered a nuisance, becomes a valuable resource.

The recycled tiles and bricks are now being used for footpaths, schools, playgrounds, community spaces, and even low-cost housing projects. They offer a cheaper, sustainable, and long-lasting alternative to traditional construction materials, making them especially beneficial for budget-constrained local development works. Beyond environmental gains, the initiative has opened up new income streams for women, enhancing their financial independence and strengthening their role in community decision-making.

The project has also encouraged behavioural change in households, promoting better waste segregation and a greater understanding of recycling. Lamlai's model demonstrates how a small, resource-constrained town can drive meaningful impact through local innovation, women-led entrepreneurship, and strong municipal support. By transforming plastic waste into du-rable infrastructure, Lamlai not only showcases environmental stewardship but also highlights how grassroots initiatives can deliver economic, social, and ecological benefits, offering an in-spiring blueprint for similar towns across India.

# Roing's Waste-to-Value Drive Sparks a Green Revolution in Arunachal Pradesh

Roing, a small town in Arunachal Pradesh's Lower Dibang Valley, confronted rising challenges from improper waste disposal that threatened public health and the region's natural landscape. In 2022, the Roing Municipal Council partnered with the local Self-Help Group (SHG) Green Roing to launch a transformative Public-Private Partnership (PPP) model for solid waste management.

Beginning with a 12-member team collecting waste from households, the initiative focused on identifying major dumping hotspots, particularly plastic-laden areas, and barricading them to prevent further accumulation. Through sustained community engagement, including street plays, awareness

drives, and educational campaigns, Green Roing encouraged residents to adopt waste segregation and responsible disposal practices.

By combining community participation, innovation, and environmental stewardship, Roing has charted a practical and scalable path toward sustainable waste management in the region.

As the initiative expanded, Green Roing established a privately run Material Recovery Facility (MRF) capable of processing around three tonnes of waste each month. Waste collected from roads, drains, and homes was sorted at the MRF, with recyclables sold to generate income for SHG members, creating a self-sustaining model. A striking symbol of Roing's transformation is the Waste to Wonder Butterfly Park at Eze Park, constructed using recycled materials, includ-ing 10,000 plastic bottles.

Today, Roing's waste management journey stands as a compelling example for other small towns in Arunachal Pradesh. By combining community participation, innovation, and environmental stewardship, Roing has charted a practical and scalable path toward sustainable waste management in the region.

# Youth-Led Green Revolution Transforms Arunachal's Rivers

Arunachal Pradesh's capital region, especially Itanagar, generates over 70,000 kilograms of waste every single day, an alarming figure that has strained the city's environment and infrastructure. Yet, amid this growing challenge, hope has taken the shape of the Youth Mission for Clean River (YMCR), a dynamic volunteer-driven movement that is steadily transforming the region's approach to waste and sustainability.

What started in 2016 as a modest cleanup effort in Itanagar's Green Belt has today become a powerful grassroots campaign. Beyond removing waste from riverbanks, YMCR focuses on reshaping public attitudes toward ecological responsibility. Their consistent presence across towns and river stretches has made community-led environmental action not just visible, but aspirational.

Powered entirely by volunteers and supported logistically by


Department of Urban Development (DUDA), PWD, Smart City Itanagar, and the Itanagar Municipal Corporation, YMCR has grown into one of the state's most committed green movements. So far, they have removed more than 1.1 million kilograms of waste from riverbanks and drainage channels across Itanagar, Naharlagun, Doimukh, Seppa, Palin, Pasighat, and beyond—an achievement that reflects both determination and teamwork.

Yet, for YMCR, the mission goes deeper than waste collection. "This isn't just about cleaning up. It's about creating a long-term behavioural shift," said a volunteer. Their structured three-tier waste management system ensures holistic action: wet waste is composted onsite, recyclables are channelled to scrap dealers, legacy waste is sent to the Hollongi dumping ground, and non-biodegradables are processed into Refuse-Derived Fuel - turning waste into a resource for industry.

"This isn't just about cleaning up. It's about creating a long-term behavioural shift," said a volunteer.

# Shillong's Merry Maidens: Championing Waste Picker Welfare and Sustainability

The Lainehskhem Self-Help Group, fondly known as the "Merry Maidens of Shillong," is pioneering a transformative approach to waste management in Meghalaya. Originating from women waste pickers at the Marten landfill, the group has evolved into a well-organised Waste Recovery Centre, producing certified compost using traditional and indigenous methods.

With training and technical support from the Urban Affairs Department, these women have turned a challenging and stigmatized profession into a source of empowerment, improving livelihoods while promoting environmentally sustainable practices.

Beyond economic benefits, the initiative has strengthened the local green economy and inspired community participation in waste

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management. By converting organic waste into high-quality compost, the Merry Maidens are reducing landfill dependency, promoting soil health, and demonstrating management. By converting organic waste into high-quality compost, the Merry Maidens are reducing landfill dependency, promoting soil health, and demonstrating the viability of community-driven environmental solutions.

Their success has become a model for other regions, illustrating how grassroots women-led initiatives can address urban and rural waste challenges while creating social, economic, and ecological impact.

Through innovation, dedication, and collaboration, the Merry Maidens of Shillong exemplify how marginalized communities can lead the way toward a cleaner, sustainable future.

# Meghalaya Introduces ‘Green Deposit’ Scheme To Curb Plastic Waste And Promote Eco-Tourism

Meghalaya’s popular destinations—Cherrapunjee, Dawki, and the Living Root Bridges—have experienced a sharp rise in tourism, bringing with it increasing plastic pollution in forests, rivers, and eco-sensitive landscapes. To address this challenge, the Government of Meghalaya has launched the Green Deposit Scheme, a targeted measure to reduce single-use plastic waste and promote responsible visitor behaviour.

Under the scheme, tourists entering notified eco-tourism zones must pay a refundable INR 100 green deposit if they are carrying plastic items such as bottles or wrappers. The deposit is returned upon proof of responsible disposal or return of the plastic at exit points. This mechanism aims to discourage littering, minimise the


environmental footprint of tourism, and foster a “leave no trace” culture among visitors.

The initiative is part of the state’s broader plan to strengthen sustainable tourism governance. Meghalaya is working to introduce eco-tourism zones with regulated carrying capacities, improved environmental oversight, and higher green fees that will be reinvested into community development and conservation infrastructure.

The Meghalaya High Court has reinforced the effort by directing strict enforcement of plastic bans, particularly on items below 120 microns. Authorities are conducting inspections, confiscating banned materials, and increasing public awareness on plastic pollution. Local communities and stakeholders are also actively involved, making the Green Deposit Scheme a collaborative effort to protect Meghalaya’s natural heritage while ensuring responsible tourism growth.

The Meghalaya High Court has reinforced the effort by directing strict enforcement of plastic bans, particularly on items below 120 microns.

# Solar Powered Cleanup: Leh's Solution to Waste

Leh, a key tourist destination in Ladakh, has long struggled with solid waste management due to increasing visitor numbers and limited disposal infrastructure. To tackle this, the Ladakh Autonomous Hill Development Council (LAHDC) launched a solar-powered solid waste management initiative in 2020.

The plant, with a processing capacity of 30 tonnes per day, leverages solar energy to reduce reliance on conventional power, lower operational costs, and ensure uninterrupted operations in this remote region. Aiming for 100 percent source segregation and a 90 percent material recovery rate, the initiative ensures that the majority of collected waste is either recycled or composted, preventing it from reaching landfills and mitigating environmental pollution.

The project follows a circular economy model, converting waste into useful products such as compost and pavement tiles, which are reintegrated into the local economy. By improving

collection efficiency and processing capabilities, the initiative has significantly reduced waste overflow in public areas, enhancing sanitation and public health.

> The plant, with a processing capacity of 30 tonnes per day, leverages solar energy to reduce reliance on conventional power

Revenue generated from selling recyclables and compost supports the plant's operations, making it financially sustainable.

With its focus on recycling, reuse, and value addition, Leh's model demonstrates how solar-powered, community-driven waste management can be replicated in other hilly and tourist regions. The project not only minimizes landfill accumulation but also lowers carbon emissions, supports long-term environmental sustainability, and ensures that waste management keeps pace with growing urban and tourist pressures, providing a cleaner and healthier environment for residents and visitors alike.

# Protecting Water, Protecting Life: Leh's Groundwater Initiative

In 2017, Leh faced a critical threat to groundwater safety, with nearly 60 percent of its population relying on borewells and growing concerns over contamination. To address this, the Municipal Committee of Leh, in collaboration with BORDA, COD Society, and Blue Water Company, launched an innovative decentralized faecal sludge treatment project.

The Faecal Sludge Treatment Plant (FSTP) leveraged natural filtration methods to treat over 6 million litres of waste by 2020, earning the AMRUT Technology Challenge Award. The initiative not only improved groundwater safety but also provided reliable sanitation services to households, hotels, and army establishments, significantly reducing environmental and public health risks.

The FSTP employs planted drying beds and horizontal gravel filtration units to naturally treat wastewater, converting sludge into organic soil conditioner for

local use. To adapt to Leh's unique geography, a specialised motor was developed, enabling suction trucks to efficiently operate in the town's narrow streets.

Despite challenges such as harsh winters and heavy tourist influx, the system has proven resilient and effective, serving as a replicable model for other regions. Leh's faecal sludge management initiative highlights how technology, locally adapted solutions, and active community participation can safeguard vital natural resources, demonstrating a sustainable pathway for groundwater protection in sensitive urban environments.

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# Leh Reclaims 20.26 Hectares Land Through Landmark Dumpsite Remediation

The Leh Municipal Committee has achieved a major environmental milestone with the scientific remediation of the legacy waste dumpsite at Bombgarh, Ladakh. Once a sprawling mound of unmanaged municipal waste, the site has now undergone complete biomining and restoration, marking a crucial step toward sustainable waste management in the trans-Himalayan region. A total of 61,637 metric tonnes of legacy waste was scientifically processed using established biomining protocols. Waste was segregated into recoverable fractions, recyclables, and inert materials, with rejects moved to a sanitary landfill in compliance with Solid Waste Management Rules, 2016. Through this systematic approach, 20.26 hectares of land have been successfully reclaimed—an unprecedented environmental recovery for a high-altitude urban settlement.

The reclaimed land is now being repurposed to support Leh's long-term urban infrastructure needs. One-third of the restored area has been earmarked for afforestation, with 100 native saplings planted to initiate ecological revival in the cold desert landscape. The remaining area is planned for the development of a modern mechanized slaughterhouse and a Construction & Demolition (C&D) Waste Management Plant, strengthening the city's resource recovery ecosystem.

A total of 61,637 metric tonnes of legacy waste was scientifically processed using established biomining protocols.

Despite challenges such as harsh weather, limited mechanized equipment, and logistical constraints of Leh's remote terrain, the project successfully created livelihood opportunities for local labour and machinery operators, while SHGs contributed to landscaping and site maintenance. Community awareness initiatives strengthened public ownership and long-term stewardship of the restored site, making the Bombgarh remediation a model for high-altitude waste management.

# A Dignified Step Forward: Leh's Wash Facility Transforms Sanitation Worker Welfare

Leh, known as the "winter desert," endures temperatures as low as –25°C to –30°C, yet sanitation workers continue waste collection, segregation, and street cleaning despite risks to their safety and dignity. Many live in informal settlements with limited basic services, and the growing tourist influx has further increased waste generation and their workload.

To address these challenges, the Ladakh Ecological Development Group (LEDeG), in collaboration with the Leh Municipal Committee and BORDA, established a dedicated Wash Facility for sanitation workers at Skampari. More than an infrastructure intervention, the facility represents a commitment to safeguarding the health, hygiene, and dignity of those who maintain the region's cleanliness. This builds on earlier support from the Leh Municipal Committee and BORDA

The Wash Facility provides improved toilets and bathing areas for both men and women, complete with hot water available throughout the year—crucial in Leh's harsh winter conditions.

through training, workshops, safety kits, tools, and PPE. The Wash Facility provides improved toilets and bathing areas for both men and women, complete with hot water available throughout the year—crucial in Leh's harsh winter conditions. It includes a well-equipped laundry room with modern washing machines, ensuring workers have clean and sanitised uniforms. A dedicated lounge area offers a peaceful space for rest, while secure lockers allow them to store personal belongings safely. The structure is engineered to withstand extreme weather, ensuring year-round functionality.

The sanitation team manages the facility through a rotational system, ensuring cleanliness and smooth daily operations. Workers living in rented accommodations also benefit from the services. This collaborative model has enhanced the quality of life for Leh's sanitation workforce and has inspired several other States to explore similar welfare-driven interventions.

# Kailashahar's Dumpsite Remediation: Transforming a Legacy Burden into Urban Opportunity

Kailashahar in Tripura has set a notable example in sustainable urban development by successfully remediating its long-standing dumpsite, once a major environmental and public health concern. Through a planned and systematic remediation process, the city treated 36,510 MT of legacy waste, restoring the ecological balance of the surrounding area.

The initiative led to the reclamation of 1 acre of valuable urban land, which had remained unusable for years due to waste accumulation. This reclaimed land is now earmarked for the development of a Sewage Treatment Plant (STP), a forward-looking step that will strengthen the city's sanitation infrastructure and improve wastewater management for

residents. Equally significant is Kailashahar's shift to a sustainable waste system. With efficient waste collection and processing systems now in place, no fresh waste is

being dumped at the site, ensuring that the gains from the remediation are preserved and the area does not relapse into degradation.

Kailashahar's transformation demonstrates how focused planning, scientific waste processing, and proactive urban management can convert legacy waste challenges into long-term assets for the community. It stands as a best practice model for small and medium towns across India striving for cleaner, healthier, and more resilient futures.

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# From Plastic to purpose: Tripura's Kamalpura Ditches SUP and uses compostable bags

Kamalpur Nagar Panchayat in Tripura has undertaken a significant sustainability initiative by replacing single-use plastic bags with certified compostable alternatives made from PBAT, a biodegradable and chemical-free polymer. These bags, tested and approved by CIPET for meeting national compostability and biodegradability standards, decompose naturally within 180 days—far quicker than conventional plastics that persist in the environment for centuries. The Panchayat has ensured affordability and accessibility by pricing them at ₹145 per kg (wholesale) and ₹160 per kg (retail), encouraging widespread adoption.

The bags are produced using an

environmentally safe, chemical-free manufacturing process supported by advanced machinery such as extruders and sealing units, ensuring durability and consistent quality. As PBAT is compatible with soil, the decomposed material returns organic value to the environment without releasing harmful substances.

Beyond product introduction, the Panchayat is actively engaging the local community through awareness campaigns to promote the use of compostable bags, reduce plastic pollution, and strengthen responsible waste management practices. This community-driven approach aims to reduce landfill burden, improve waste segregation, and foster a cleaner urban environment.

The initiative also offers strong potential for replication in other urban areas. With scalable production and growing public demand, the model can support wider distribution of compostable bags and significantly reduce dependence on single-use plastics. By prioritizing sustainable alternatives, Kamalpur demonstrates a practical, impactful pathway towards environmental stewardship and long-term urban resilience.

# Cleaning Water bodies Through Community Action in Tripura

Tripura's Urban Local Body (ULB) has implemented a structured and comprehensive approach to prevent solid waste pollution in local water bodies. To ensure that waste does not enter the aquatic ecosystem, all drains leading to the water body were equipped with wired mesh installations at key points. These barriers, supported by a manual cleaning mechanism, help intercept and remove solid waste before it reaches the water.

Alongside physical infrastructure, the ULB placed strong emphasis on public awareness. Extensive awareness campaigns were conducted to educate citizens about responsible waste disposal, idol-immersion guidelines, and the

long-term consequences of water-body pollution. These messages were communicated through multiple platforms, including ward-level outreach, community meetings, and targeted engagement activities, ensuring broad public participation.

A recurring challenge was the disposal of solid waste by individuals directly into water bodies. To counter this, the ULB organised consecutive cleaning drives that actively involved local residents. These community-driven initiatives were complemented by door-to-door campaigns aimed at discouraging harmful practices and promoting environmentally responsible behaviour.

The joint efforts of local municipal teams and proactive community participation have been key to improving waste management and protecting the water body. Through targeted interventions, regular clean-ups, and sustained public outreach, residents and authorities together have significantly reduced pollution levels. This initiative showcases how community-led action, supported by municipal systems, can effectively safeguard urban water ecosystems.

# Hornbill Festival's Zero Plastic Roadmap

Nagaland's iconic Hornbill Festival has emerged as a national model for how large celebrations can be both vibrant and environmentally responsible. The 26th edition set a new benchmark—zero-waste, zero-plastic, and fully sustainable. From banning single-use plastics to replacing them with bamboo straws and banana-leaf plates, the festival proved that cultural pride and climate action can coexist seamlessly. With over one million plastic items avoided and nearly 50 metric tons of $CO_2$ emissions prevented, Hornbill demonstrated what committed collective action can achieve.

This year, plastic straws, disposable plates, cups, and bags were banned entirely. All vendors were required to use biodegradable options such as leaf plates, bamboo straws, and bagasse cutlery. Regular inspections ensured there was zero slippage. Clear signage and separate bins for wet, dry, and recyclable waste were placed across the venue. Volunteers

guided visitors to segregate waste correctly, making responsible behaviour easy and intuitive. Dry waste was sent for recycling, while wet waste was composted on-site and later distributed to local farmers.

Sustainable choices were thoughtfully woven into every aspect of the festival. Vendors provided compostable takeaway containers, and refillable water stations made bottled water unnecessary. Visitors were encouraged to carry their own utensils—reducing waste one meal at a time. To ensure comfort and hygiene for all guests, 42 clean and well-maintained toilets were installed throughout the festival grounds.

Local sourcing further helped cut transportation emissions, reinforcing the circular economy ethos. Recyclable materials were sorted and reused, keeping resources in the loop. Every initiative—big or small—was deliberate and impactful. In the end, the festival not only prevented massive plastic use but also significantly improved air quality by cutting 50 MT of $CO_2$ emissions. Hornbill stands today as a powerful reminder that sustainability is not a trend—it's a choice that transforms communities.

# Nagaland Strengthens Monsoon Readiness Through Intensive Sanitation Measures

The Safai Apnao Bimaari Bhagao (SABB) campaign, launched under Swachh Bharat Mission–Urban 2.0, led by MoHUA, aimed to strengthen sanitation systems and improve public health preparedness ahead of the monsoon season. Recognising that heavy rainfall heightens cleanliness challenges and increases the incidence of waterborne and vector-borne diseases, the initiative focused on equipping Urban Local Bodies with preventive measures, enhanced cleaning routines, and community awareness drives. The campaign aimed to mitigate monsoon-related health risks by ensuring timely action, improved waste and drain management, and strengthened civic hygiene across urban areas.

Nagaland emerged as a frontrunner

among the North Eastern States, implementing proactive measures to improve monsoon wellness. Key Urban Local Bodies (ULBs) including Tuensang, Bhandari, Pfutsero, Mokokchung, Kohima, and Dimapur led focused cleanliness and sanitation drives. Dimapur prioritized storm drain maintenance, while Mokokchung conducted sanitation awareness programs in schools. Remote towns such as Tening and Tizit organized health camps and community cleanup activities.

In total, nearly 5,000 participants took part in 60 cleanliness drives, 30 rainwater harvesting initiatives, and 40 post-monsoon awareness campaigns, ensuring improved drainage, waste management, and community hygiene. The campaign successfully addressed waterlogging, cleared drains, and educated citizens about disease prevention, strengthening Nagaland's resilience against monsoon-related health risks.

By combining community engagement, targeted infrastructure maintenance, and awareness programs, Nagaland's efforts during the SABB campaign not only enhanced urban cleanliness but also contributed significantly to monsoon wellness, safeguarding public health across both urban and remote areas.

# Darjeeling Municipality - Eco protective initiative in Solid Waste Management

Darjeeling Municipality adopted several innovative and community-centric waste management practices to address the challenges of hilly terrain, high tourist inflow, and limited land availability. The approach focuses on segregation at source, resource recovery, community participation, and eco-friendly disposal. Well equipped waste collectors with proper safety kits deployed for 75 to 100 household each and also for resource institutions to collect segregated dry and wet waste separately. Community mobilisers engaged from Self Help Groups to mobilized the citizen and the tourists. Banned plastic carry bags below 120 microns and Single Use Plastics (SUP) and enforced. At the entry point, tourists are being checked regularly to restrict entry with plastics. Local NGOs / CBOs


are being encouraged to help the municipality in implementation of prohibiting plastics and also in community mobilization. Extensive anti-littering messages have been circulated through IEC boards erected at important tourist places. The old vehicles have been replaced by modern vehicles to collect waste. Garbage vulnerable points have been beautified as small parks, installation of statutes, seating arrangement for pedestrians etc. An interim arrangement as material recovery facility has been made for sorting the dry waste and being sold to the recyclers. User charge is being collected from citizen and the commercial establishments especially from hotels and restaurants. With an extensive community mobilization, households have been encouraged to adopt the practice of home composting. Through these initiatives vector control diseases and health hazards have been restricted.

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