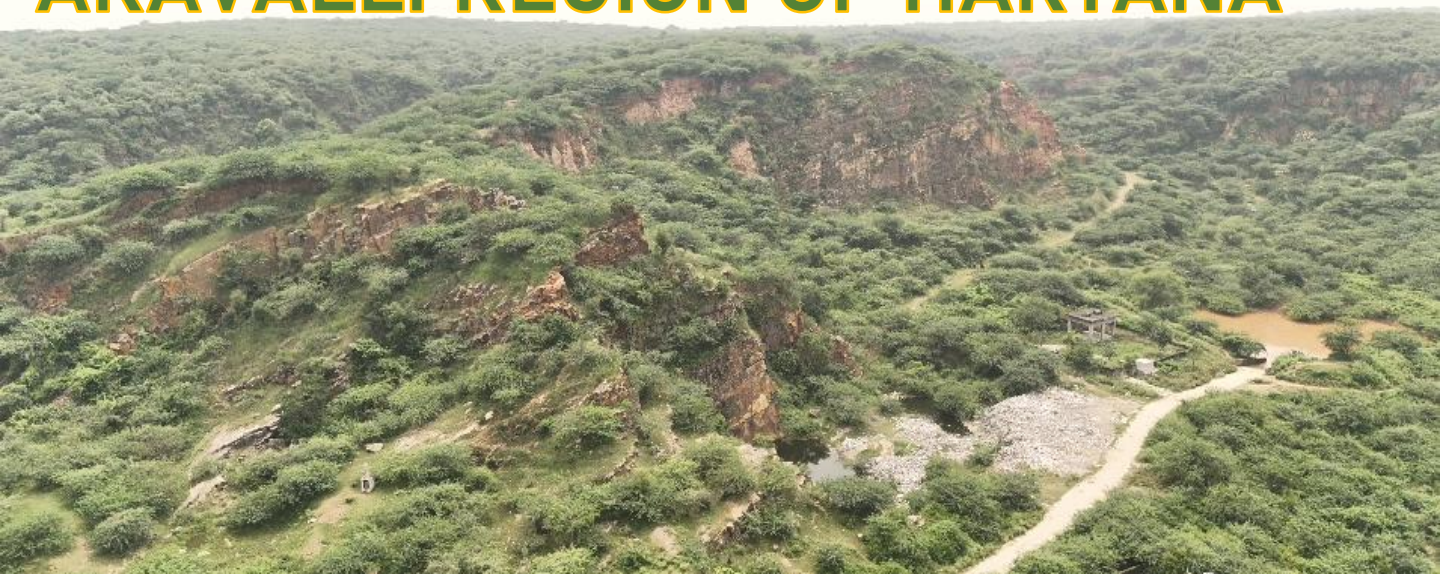
Workshop on

ECOSYSTEM RESTORATION IN THE ARAVALLI REGION OF HARYANA



Wednesday, 3rd September, 2025 | 09:30 AM to 2:00 PM

Workshop Proceedings

Vasundhara
ENVIRONMENT SUSTAINABILITY AND BIODIVERSITY ENHANCEMENT

The workshop on **"Ecosystem Restoration in the Aravalli Region of Haryana"** was convened on 3rd September 2025 at the **India Habitat Centre, New Delhi**, under the aegis of **Project Vasundhara**, facilitated by Safe Water Network India in partnership with **India Water Partnership (IWP)**, **WAPCOS**, and **PGDAV College (Evening)**. The event drew together an eminent gathering of senior government officials, ecologists, scientists, academics, and practitioners to deliberate on strategies for ecological revival and sustainable management of the Aravalli landscape.

The inaugural session was graced by **Mr. Subhash Yadav, Conservator of Forests, South Gurugram**, **Mr. Ravindra Sewak, India Country Director, Safe Water Network India**; **Dr. R.K. Gupta, Principal, PGDAV College (Evening)**, **Dr. Veena Khanduri, India Coordinator, IWP**, and **Ms. Poonam Sewak, Vice President – Projects and Partnerships, Safe Water Network India**. Following a warm welcome address by Ms. Poonam Sewak, the proceedings began with the **lighting of the ceremonial lamp**, symbolizing the workshop's commitment to illumination, renewal, and collective action..

Delivering the **keynote address**, **Mr. Subhash Yadav** presented a comprehensive overview of the **dynamics of the Aravalli hills in Haryana**, their challenges, and the pathways for restoration. He underlined the ecological and cultural significance of the Aravallis, which stretch across seven districts of Haryana, covering an area of nearly one lakh hectares. Correlating their ancient heritage with contemporary needs, he described the **Northern Tropical Dry Deciduous forests**, highlighting keystone species such as **Khejri and Rohida**, which have shaped local ecosystems and livelihoods for centuries.

Mr. Yadav applauded the **Supreme Court's interventions to curb mining** in the Aravallis, enabling the forest department to increase green cover and initiate regeneration. He commended the role of communities in protecting natural resources and drew attention to the potential of **agroforestry systems**, particularly around the hardy Khejri tree, to create ecological and livelihood co-benefits. At the same time, he expressed concerns over threats to wildlife, pointing to the increasing mortality of leopards and other species due to road accidents.

The keynote also addressed **hydrological challenges**, including the drying up of seasonal rivers such as the Dohan, Sahibi, and Krishnawati. He recalled the past vibrancy of **Badkhal Lake**, once a thriving ecological and recreational hub—even a popular location for Hindi cinema in the 1970s—now lying desiccated. Positive examples included the **revival of Kotla Lake in Nuh district**, which he cited as a replicable model for water body restoration and groundwater recharge across the Aravallis.

Mr. Yadav also spoke about innovative government interventions, including a **pension scheme for old trees**, where owners of trees above 75 years of age receive INR 3,000 annually for their protection and upkeep. He noted with pride that **3,876 trees are already benefiting from this scheme**, reflecting Haryana's commitment to preserving its natural heritage through creative incentives.

Importantly, he referenced the **first OECM site in India—Aravalli Biodiversity Park in Gurugram**, recognized in 2020 under the Convention on Biological Diversity framework. This milestone, he noted, placed the Aravallis at the forefront of India's commitments to conservation beyond protected areas. By aligning restoration efforts with OECM frameworks, Haryana has a unique opportunity to integrate governance, ecological science, and community participation in its conservation roadmap.

Concluding his address, Mr. Yadav laid out a **future management perspective** for the Aravallis, emphasizing inter-departmental coordination, stricter monitoring of encroachments, and the scaling up of community partnerships to align with national and global biodiversity goals.
Mr. Yadav urges the ecologists, NGOs to **partner with the CSR Foundations in the program titled "Haryana Compensatory Andaman Forest"** to promote compensatory afforestation in Haryana's Aravali ranges to offset the destruction of tropical forests in the Andaman and Nicobar Islands. The initiative entails afforestation efforts covering over 24,000 hectares of low-forest-cover land in the Aravalis.

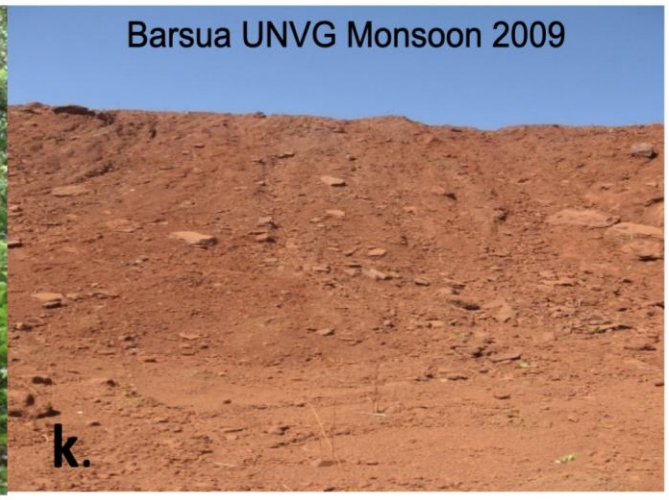
His keynote was followed by a presentation from **Ms. Poonam Sewak** on **Project Vasundhara**, which showcased Safe Water Network India's ongoing efforts in ecological restoration across the Aravallis. She detailed the revival and beautification of **five ponds**, extensive **tree plantation drives**, and the formation of local committees to enhance capacity among farmers and residents. Using testimonials from local communities, she demonstrated how pond rejuvenation projects have not only improved **groundwater recharge**—harvesting an estimated **178 million liters of water**—but also enhanced **wildlife presence**, with leopards recorded drinking from restored ponds. She highlighted how these sites have been transformed into vibrant **community spaces** with walking tracks, open gyms, swings, and biodiversity-friendly landscaping. To date, Project Vasundhara has positively impacted over **3,000 acres across 500 villages**, proving how ecological restoration can simultaneously enrich biodiversity, strengthen livelihoods, and foster social well-being.

The session brought together three senior ecologists, scientist and practitioners from the Biodiversity Parks programme to connect watershed science, on-ground restoration, and below-ground ecology.

Dr. Faiyaz Ahmad Khudsar (In-Charge Scientist, Biodiversity Parks Programme, CEMDE–DU) highlighted that restoring the Aravallis means reviving natural ecological processes, not just planting trees. He explained how temperature affects wildlife breeding and sex ratios, showing the delicate balance of ecosystems. Pointing to the Sahibi and its tributaries Dohan and Krishnawati — now degraded or dried — he stressed that rivers must be treated as living systems, best restored through **micro-watershed management (100–500 hectares)** rather than viewing them as mere drains. Using Yamuna and Aravalli Biodiversity Parks as examples, he showed how desilting wetlands, reclaiming alkaline soils with native grasses, and reintroducing native species have transformed degraded landscapes. At Yamuna Biodiversity Park, a 100-acre wetland now stores **500 million gallons of floodwater annually** and attracts over **5,000 migratory birds each year**. Such efforts, he noted, demonstrate how nature-based solutions can build resilience, recharge groundwater, and bring biodiversity back to the Aravallis.

Dr. M. Shah Hussain (Ecologist & Scientist-in-Charge, Aravalli & Neela Hauz Biodiversity Parks, CEMDE–DU) shed light on adopting practices in urban situated biodiversity parks as a distinct restoration approach for urban/peri-urban degraded lands—smaller than protected areas, but designed to simulate native ecosystems. Using Aravalli Biodiversity Park as a learning site, he traced transitions from a *Prosopis* monoculture to diverse scrub, mixed dry deciduous, and broad-leaf moist deciduous communities; examples included a mined pit repurposed as an orchid conservatory, creation of corridor forests, and development of ~100 acres of native grasslands now used by grassland birds and small mammals. He framed the work within the UN Decade on Ecosystem Restoration and the urban challenges of insensitive landscaping, invasive species, and fragmented habitats.

Dr. Vivek Choudhary (Scientist-in-Charge, Tughlaqabad Biodiversity Park, CEMDE–DU/DDA) closed with the “hidden half” of restoration—below-ground biodiversity. He explained how complex soil communities (from microbes to mesofauna) regulate decomposition, nutrient cycling, plant stress tolerance, and ultimately the stability of multiple ecosystem processes. Case studies from mined-out landscapes (Odisha iron ore sites; SAIL limestone; coal over-burden dumps in Jharkhand) showed how rebuilding soil biota and native rhizospheres can catalyze the formation of three-storeyed native forests within a decade. He recommended routine inclusion of soil-biological indicators in restoration monitoring, to complement vegetation and hydrology metrics.



Key Takeaways

- Restoration of the Aravallis requires a holistic approach and must focus on reviving ecological processes — not just tree planting — with rivers, wetlands, forests, soil, and agriscapes seen as interconnected systems.
- Rivers like the Sahibi, Dohan, and Krishnawati should be treated as living systems, restored through micro-watershed management rather than engineered drains.
- Biodiversity parks demonstrate how degraded lands can be transformed into native ecosystems, supporting orchids, grassland birds, small mammals, and resilient plant communities.
- Replacing invasive monocultures with diverse native species strengthens habitats and aligns with global frameworks like the UN Decade on Ecosystem Restoration.
- Soil biodiversity — microbes, mesofauna, and rhizosphere communities — plays a critical role in nutrient cycling, forest regeneration, and long-term ecosystem stability.

This session translated principles into replicable models spanning watershed management, peri-urban IWRM, zero-waste campuses, and a community-led hillock restoration.

Dr. Veena Khanduri (Executive Secretary-cum-Country Coordinator, India Water Partnership) shared an action-research pilot on Integrated Water Resources Management (IWRM) in Garhi Harsaru, Gurugram. After studying eight villages, the team prepared detailed plans for IWRM and Solid/Liquid Waste Management, focusing on a "zero-waste" model with door-to-door collection and decentralized processing. The project strengthened local governance through Gram Sabhas, community *Swachh Committees*, and awareness campaigns in schools, while also introducing bio-sand filters and rainwater harvesting.

In three wards, user-fee backed services like waste collection and drain cleaning were successfully demonstrated, supported by incentives such as a "Best Gully Award. Dr. Khanduri emphasized that IWRM acts as a unifying platform, linking waste, water quality, recharge, and governance — showing that lasting restoration depends as much on community systems as on physical infrastructure.

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Dr. K.P.S. Malik (Agriculture Expert, WAPCOS; former Chief Scientist & Head, Agriculture Division) spoke on the **role of watershed development in restoring land and water resources**. He outlined key principles such as using land according to its capacity, conserving rainwater where it falls, stabilizing gullies, and linking land use with livelihoods.

Sharing the **Dantiwara Watershed project in Sirohi (Aravalli Hill Zone)**, he described interventions like contour bunds, check dams, silt detention structures, nurseries, and agro-forestry models. These efforts improved soil moisture, recharged groundwater, reduced drought impacts, and increased cropping intensity.
The project also created local jobs and eased the daily burden on women and landless households by improving access to water and fuelwood. Dr. Malik stressed that **integrated watershed management not only conserves ecosystems but also strengthens rural communities**.

Dr. Mayank Pandey (Assistant Professor, Environmental Studies, PGDAV College–Evening) highlighted how **decentralized composting can drive urban environmental sustainability**, with PGDAV College as a model. On campus, waste is segregated at source, and kitchen and garden waste is composted in pits and Aerobin units, creating organic manure and reducing landfill load. The college also manages other waste streams: nearly **14,875 kg of paper** recycled with *Jaagruti* (eliminating the need for new paper since 2016), plastic collected under the *"My 10 Kg Plastic"* campaign, and over **700 kg of e-waste** recycled through authorised DPCC channels.

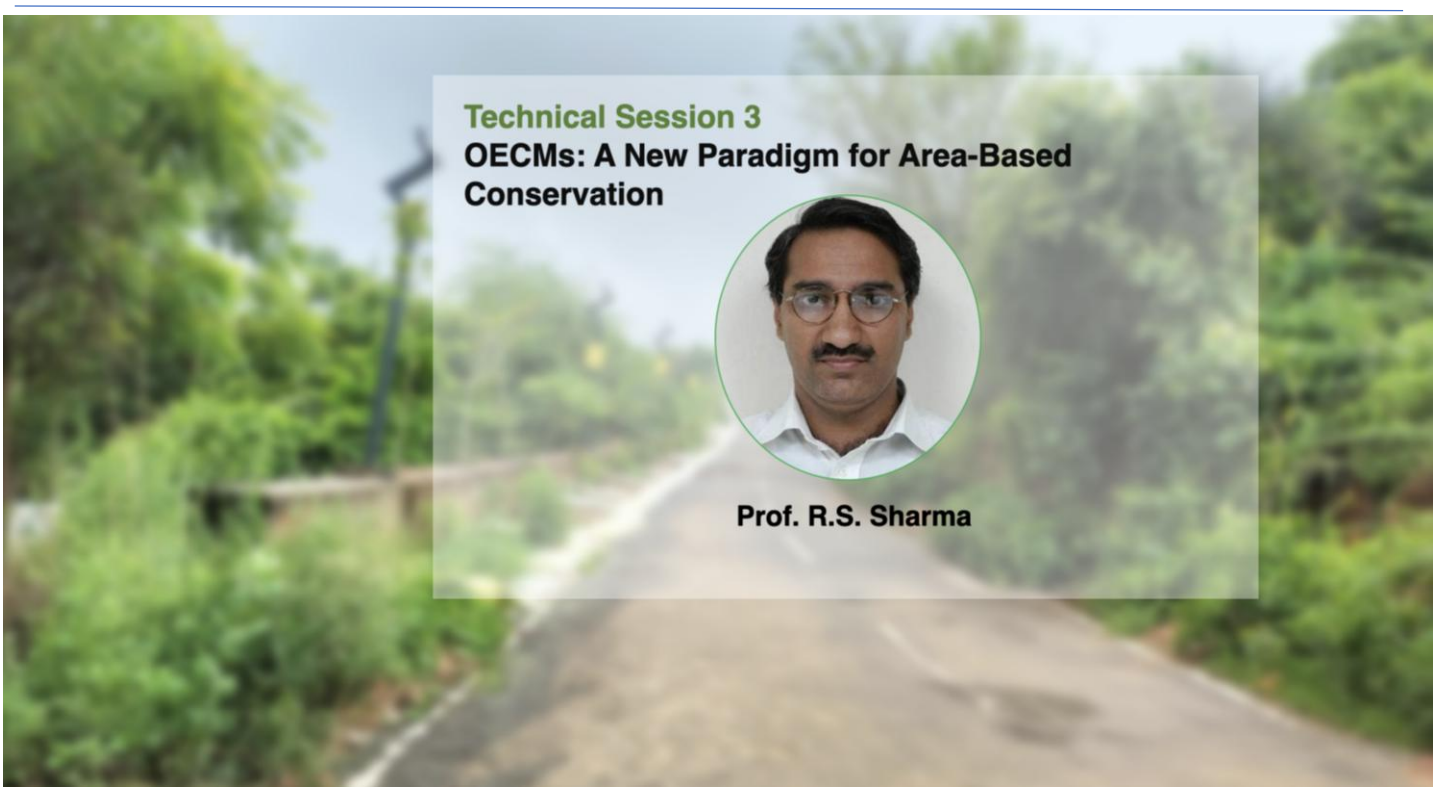
These initiatives have earned recognition as a **Zero-Waste Institution** by MCD and national awards from MGNCRE. A "wasteland-to-urban-forest" drive further shows how academic campuses can become **living laboratories for sustainability**.

Mr. Sambhaji Palve (Head of Water Resources, Safe Water Network India) shared the case of a **citizen-led restoration effort at Hasanpur Hillock in Gurugram**. The site covered about 30 acres, with steep slopes (15–35%) and severe soil erosion. To revive the area, the team first worked with local authorities to secure permissions, then organized regular clean-up drives, planted native trees, shrubs, and grasses, and ensured consistent watering and care.

A local *Paryavaran Samiti* (environment committee) was formed to guide and sustain the effort. Over **2,200 saplings were planted**, with an impressive **90% survival rate**. Before-and-after images showed visible improvements: reduced erosion, safer walking trails, and a more pleasant natural environment. Importantly, signs of biodiversity recovery have already begun, with sightings of insects like **Mylabris syriaca, Eretmocera impactella, Aulacophora femoralis, and seed bugs**, suggesting the ecosystem is responding positively. Mr. Palve emphasized that this community-driven model can easily be replicated across other vulnerable areas along the Aravalli fringes.

Key Takeaways

- Restoration of the Aravallis must focus on reviving ecological processes along with the community.
- Solid waste management threatens biodiversity and human health. It must be addressed at the local level in each village and site.
- Degraded land systems can be revived through interventions like contour bunds, check dams, silt detention structures, nurseries, and agroforestry models. These efforts improve soil moisture, recharge groundwater, reduce drought impacts, and increase cropping intensity.
- Effective restoration of the Aravallis requires integrating hydrology, vegetation, and soil science with community participation, ultimately linking ecosystem health to climate resilience and livelihoods.



The third technical session was delivered by **Prof. R.S. Sharma, Head, Department of Environmental Studies, University of Delhi**, who shared a thought-provoking perspective on ecological restoration and biodiversity governance through the lens of **Other Effective Area-Based Conservation Measures (OECMs)**.

Prof. Sharma began by emphasizing the need for a **systems-based approach** to ecological restoration, cautioning against fragmented or piecemeal interventions. He reflected on how growing purchasing power in society has paradoxically coincided with an increase in diseases linked to degraded ecosystems, particularly vector-borne diseases. He framed ecosystem restoration as a form of "insurance" for the planet and for future generations, urging that definitions of development must evolve to integrate biodiversity and ecosystem health.

He observed that the success of ecological restoration is shaped not only by technical interventions but also by how communities perceive and relate to their environment. Drawing on case studies, he emphasized that building positive perceptions early and involving communities from the very beginning of restoration efforts often leads to outcomes that are more sustainable and widely accepted, compared to initiatives where participation is introduced only at later stages.

Prof. Sharma then provided a historical overview of India's conservation trajectory since independence. He described the first phase as one of **"nature for itself,"** when national parks, wildlife sanctuaries, and biosphere reserves were declared in the 1960s and 70s. Despite these efforts, biodiversity loss continued. The next phase, **"nature despite people,"** during the 1970s and 80s, was characterized by approaches based on concepts such as maximum sustainable yield and minimum viable population, where conservation was pursued regardless of community preferences. The 1990s and 2000s marked the **"nature for people"** phase, where benefits of nature were explicitly linked to human well-being. These phases, he stressed, are not mutually exclusive but complementary and continue to inform conservation approaches today.

In discussing OECMs, Prof. Sharma explained that these are not protected areas per se but landscapes where governance and management systems have historically maintained ecological value and delivered sustainable benefits. He highlighted that the **Convention on Biological Diversity (CBD) formally recognized OECMs in 2018**, opening a new paradigm in global conservation. OECMs can include diverse spaces such as sacred groves and cultural landscapes, where spirituality and tradition reinforce ecological preservation. He called for careful vigilance against "OECM washing"—mislabeling areas as OECMs without meeting the proper criteria.

Prof. Sharma argued that **cultural diversity should be acknowledged as the fourth pillar of sustainable development**, alongside economic, social, and environmental pillars. Spiritual and cultural dimensions, he noted, play a critical role in fostering biodiversity stewardship, as demonstrated by India's sacred groves. He called for **state-level task forces and institutional mechanisms** to strengthen the OECM framework and advocated for a separate national database to track such areas.

He also underscored the importance of linking universities and academic institutions with restoration initiatives. By engaging students and nurturing ecological entrepreneurship, India can create a new generation of leaders driving both biodiversity conservation and innovative green livelihoods.

Prof. Sharma concluded by outlining three focus areas for future work: assessing the current state of biodiversity, identifying key threats and challenges, and developing ecological and technological solutions to prevent degradation. He highlighted the role of Delhi University in supporting these efforts and reiterated that OECMs can serve as a catalyst for triggering a mass movement for biodiversity conservation in India.

Key Takeaways from the Session:

- Ecological entrepreneurship is the need of the hour. In India, it can create a new generation of leaders driving both biodiversity conservation and innovative green livelihoods.
- Ecosystem restoration should be viewed as planetary insurance and embedded in the definition of development.
- Positive community perceptions and early involvement are critical for sustainable outcomes.
- Conservation in India has evolved through complementary phases, from “nature for itself” to “nature for people.”
- OECMs, formally recognized in 2018, provide a new paradigm for safeguarding ecologically significant but non-protected areas.
- Cultural diversity must be embraced as a fourth pillar of sustainable development.
- Institutional mechanisms, vigilance against “OECM washing,” and stronger academic linkages are essential for scaling conservation.

Workshop Closure

The workshop concluded with a collective acknowledgement that restoring the Aravalli region is not only an ecological necessity but also a shared responsibility. Speakers and participants agreed that success will depend on aligning science, policy, and community action, while building partnerships that can translate ideas into long-term, scalable outcomes.

Vote of Thanks

Delivering the vote of thanks, Ms. Poonam Sewak, Vice President – Programs and Partnerships, Safe Water Network India, expressed deep gratitude to the distinguished speakers, dignitaries, and participants for their valuable contributions. She extended thanks to partners WAPCOS, India Water Partnership, and PGDAV College (Evening) for their collaboration in making the workshop possible. She closed by reaffirming Safe Water Network India's commitment under Project Vasundhara to continue fostering partnerships and driving impactful ecological restoration efforts across the Aravallis.

Click here for the video of Program Vasundhara