

RIVER CITIES ALLIANCE

Updates about the Alliance activities

“Rivers have always occupied a central place in India’s heritage and ethos, and have traditionally been sources of spiritual inspiration, cleansing and penance... We are striving to introduce a new thinking on river cities. The establishment of ‘River Cities Alliance’ (RCA) connecting river cities across the country is one such step in this direction” - Shri Narendra Modi, Hon’ble Prime Minister of India

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GLOBAL COLLABORATION FOR A WATER SECURE FUTURE" EVENT BY MOJS AT WORLD ECONOMIC FORUM (WEF)-DAVOS

At the World Economic Forum 2025 (WEF 2025) in Davos, the Ministry of Jal Shakti hosted a landmark session titled "Global Collaboration for a Water-Secure Future" on 22nd January 2025. This pivotal event brought together global leaders, policymakers, and experts to highlight India's exceptional achievements in water management and to foster international dialogue on sustainable practices.

The session showcased India's transformative journey toward sustainable water management, underpinned by flagship programs such as the Namami Gange Programme, River Cities Alliance (RCA) and Jal Jeevan Mission (JJM). These initiatives have redefined the approach to water conservation and resource management, rejuvenating vital river ecosystems and ensuring equitable access to safe drinking water.

India's commitment to innovation and inclusivity in water conservation was a central theme, with discussions focusing on groundbreaking policies, community-led efforts, and the integration of cutting-edge technologies. The session also emphasized India's global leadership in addressing critical water challenges, serving as a model for other nations striving to balance development with environmental stewardship.

By bringing together diverse perspectives, this session underscored the need for collective action and global partnerships to address water security challenges in an era of climate change and growing water scarcity. It reaffirmed India's role as a trailblazer in sustainable water management and a key player in shaping a water-secure future for the world.

Session Highlight

The session commenced with a sacred Kalash Ceremony, performed by all the dignitaries. The Kalash, a revered vessel in Indian culture, symbolizes the origin of creation and the life-sustaining energy of water. The session also highlighted how, under the skilled leadership of Prime Minister Narendra Modi, India launched Namami Gange, the world's largest river conservation initiative, setting global benchmarks in ecological restoration, pollution control, and community engagement. Building on this success, India established the River Cities Alliance (RCA) to unite 145 cities including the city of Aarhus from Denmark.

This transformative session was graced by esteemed dignitaries, including Union Minister Shri C.R. Patil and Maharashtra Chief Minister Shri Devendra Fadnavis. Highlighting India's achievements, the session emphasized the success of flagship initiatives like River Cities Alliance strongly connecting riverine cities.

Distinguished experts, including Shri Rajeev Kumar Mital, Director General of the National Mission for Clean Ganga (NMCG); Shri Nicolaj Bang, Deputy Mayor of Aarhus City, Denmark; Shri Michael Webster, Head of the World Bank's 2030 Water Resources Group; Dr. James Wescoat, Professor at MIT; and Dr. Sujay V. Kumar, Scientist at NASA, shared their perspectives on leveraging innovative technologies and global cooperation to further enhance water security and management. The success of the RCA was recognized as a model for collaborative and scalable water solutions globally.

The session was attended by over 55 participants in person, from various parts of the world, along with more than 700 online participants who witnessed this historic discussion, including the officials from 110+ RCA member cities. Experts from leading organizations and institutions, including Denmark, NASA, MIT, and the World Bank, took inspiration from India's water journey, addressing the shared challenges and potential solutions in managing water resources across the world.

The convergence of global and local efforts at Davos showcased the transformative potential of innovation, collaboration, and visionary leadership in securing a water-sustainable future in the Water Action Decade. With the RCA benefiting Indian cities and India's water revolution emerging as a global benchmark, the session concluded with a strong consensus: a structured global platform for international river cities under the UN commitment is essential for co-learning, co-creating, and scaling sustainable solutions for water security worldwide.



Glimpses of the event

TECHNICAL SUPPORT TO RCA MEMBER CITY FOR DEVELOPING ECO-FRIENDLY RIVERFRONT

As part of its core mandate, the River Cities Alliance (RCA) provides technical support to member cities in advancing sustainable and resilient urban river management practices. In alignment with this objective, the RCA, through the National Institute of Urban Affairs (NIUA), extended technical assistance to the Kolkata Port Trust (KPT) for the development of an eco-friendly riverfront along a 1.2 km stretch of the Hooghly River.

This stretch is characterized by high tidal velocity, which has been contributing to significant bank erosion. As such, KPT's riverfront development proposal not only aims to enhance the public interface with the river but also includes strategic embankment strengthening as a key component. The initial proposal was prepared by KPT in collaboration with IIT Kharagpur and was reviewed by the NIUA team.

To gain a comprehensive understanding of the site context, multiple technical consultations were held with KPT. A site visit was conducted from 10th to 11th March 2025, during which NIUA representatives inspected the existing conditions and held on-ground discussions with relevant stakeholders and officials. Following the visit, NIUA developed and presented a conceptual plan outlining a set of eco-sensitive design recommendations. These included nature-based solutions for bank stabilization, such as vegetated ripraps and bioengineering techniques, as well as sustainable design elements for the riverfront, like permeable walkways, native landscaping, and inclusive public spaces. The approach emphasized balancing ecological integrity with urban utility and public engagement.

This initiative is particularly significant given the limited number of eco-friendly riverfront development (RFD) models in India. The insights and lessons emerging from this pilot can serve as a replicable reference for other cities across the country that are planning or implementing riverfront projects. Through such efforts, RCA continues to promote river-sensitive urban development that aligns with climate resilience, biodiversity enhancement, and citizen well-being.



Existing condition of the site

WORKSHOP ON “CONTEMPORARY MODELS FOR WATERFRONT DEVELOPMENT IN INDIAN CITIES

A two-day workshop on “Contemporary Models for Waterfront Development in Indian Cities” was held on 22nd and 23rd February 2025 in Ahmedabad, in collaboration with the High-Level Committee on Urban Planning (Gujarat). Targeted at River Cities Alliance (RCA) member cities and urban centres across Gujarat, the workshop aimed to introduce a new paradigm of river-sensitive and eco-friendly riverfront development. Emphasizing the need to respect the ecological integrity of rivers while integrating the social and cultural values they offer, the sessions highlighted how urban waterfronts can be reimagined as ecological assets that support both people and nature. Case studies from URMP cities like Ayodhya and Aurangabad, green embankment approaches by HCP in Pune’s Mula-Mutha rivers, the Jhelum Riverfront in Srinagar, and examples from Bhutan were showcased to provide diverse perspectives and actionable insights.

The workshop brought together officials from cities such as Gorakhpur, Muzaffarpur, Saharanpur, Kolkata, Haridwar, Jhansi, and Ghaziabad, fostering peer learning and exchange. Key discussions revolved around combining infrastructure solutions like sewage interception to maintain river health with design interventions that enhance the river-people connect, promote flood attenuation, and support livelihood and recreational opportunities. A central takeaway was the importance of viewing riverfronts not merely as beautification projects but as part of a larger vision of urban resilience, environmental sustainability, and inclusive development, underpinned by nature-based solutions and community engagement.



SEASON 5 STUDENT THESIS COMPETITION ON REIMAGINING URBAN RIVERS

The National Institute of Urban Affairs (NIUA) & National Mission for Clean Ganga (NMCG) have been organising a national-level thesis competition on “Re-imagining Urban Rivers” as a means to sensitise and encourage next-generation planners and practitioners to take up projects for the harmonious integration of cities and rivers. The 5th season of the Student Thesis Competition on 'Re-Imagining Urban Rivers', organized by NIUA and NMCG, is well underway.

In December 2024, the NIUA invited industry experts to conduct an assessment drive and a brainstorming workshop through which 18 talented and motivated students were selected as finalists. The 9 undergraduate and 9 graduate students come from diverse academic backgrounds, from Architecture and Planning to Food Science and Technology. On January 31st, 2025, a virtual onboarding session was held for students and their faculty guides to understand the exciting opportunities awaiting them.

From March 20th to 22nd, 2025, a writeshop was organised with the finalists in Delhi. The students engaged in an intensive brainstorming and learning experience: internalizing principles of urban river management through the Urban River Management Plan Framework, visiting the NMCG headquarters, receiving guidance from top NMCG officials, and seeing urban river management in action at the Delhi Development Authority's Asita Park. At the end of the workshop, the students created a game to facilitate decision making on urban rivers, called "River-Run: Gamifying Urban River Management". 'River-Run' challenges players to make real-time decisions around river conservation, city planning, and crisis response while balancing financial constraints and impact trade-offs using action and crisis cards, encouraging informed and reflective decision-making. The game was officially unveiled by Sh. Rajiv Mishra, Ex-DG NMCG & Chief Advisor, NIUA, and Sh. Dheeraj Joshi, Director, NMCG, during the event.





Glimpses of the writeshop





CITY CORNER



Surat, GUJARAT

Surat, one of India's fastest-growing cities and a hub for textile and diamond industries, has consistently ranked among the cleanest cities in the country. With rapid urbanization and a population exceeding 6 million, managing solid waste efficiently became a critical challenge for the Surat Municipal Corporation (SMC). Traditional waste collection methods like open bins, roadside dumping, and irregular pickups, not only posed sanitation issues but also led to unpleasant odors, visual pollution, and health risks due to exposure to bio-degradable waste.

To tackle these urban waste management issues innovatively, the SMC introduced a Smart Underground Solid Waste Collection System, a first-of-its-kind initiative in Gujarat. Launched under the Smart Cities Mission of the Government of India, this modern system is designed to automate, monitor, and streamline waste collection while keeping public spaces clean and odor-free. By embedding advanced technologies like IoT-enabled sensors, mechanized waste lifting, and real-time monitoring, the system addresses both environmental and operational inefficiencies associated with conventional waste disposal.

The underground model also reflects a broader vision of urban sustainability by reducing human exposure to waste, minimizing the carbon footprint of garbage trucks through optimized routes, and enhancing the overall aesthetic and livability of the city.

Key Features of the “Smart Underground Solid Waste Collection System”

- **Underground Smart Bins:** The Surat Municipal Corporation (SMC) has installed 75 underground garbage bins across the city, each with a capacity of 1.5 tonnes. These bins are strategically placed in public areas to facilitate easy access for waste disposal.
- **Sensor Integration:** Equipped with ultrasonic sensors, these bins monitor waste levels in real-time. Once a bin reaches 70% capacity, an alert is sent to the control room, ensuring timely collection and preventing overflow.
- **Dual Inlets:** Each bin features two separate inlets—one for the general public and another for municipal workers, promoting efficient waste segregation between dry and wet waste.
- **Automated Collection:** The bins are designed for mechanical emptying using cranes, eliminating direct human contact with waste and enhancing worker safety.
- **Cost Efficiency:** The smart system has led to an 8% reduction in waste transportation costs by enabling a single vehicle to service multiple bins, thus optimizing resource utilization.

Impact

The implementation of the Smart Underground Solid Waste Collection System has significantly improved Surat's urban sanitation. By minimizing open dumping and ensuring efficient waste collection, the city has enhanced its cleanliness and reduced health hazards associated with waste accumulation. This initiative has also contributed to Surat's recognition in national cleanliness rankings.



The underground waste collection system in Surat



TECHNOLOGY CORNER

ADVANCED OXIDATION TECHNOLOGY

TERI Advanced Oxidation Technology (TADOX®) provides treatment of wastewater stream containing high colour, COD, BOD, TOC, dissolved organics, micro-pollutants, non-biodegradable and persistent organic pollutants (POPs) in effluents from grossly polluted industries and municipal wastewater. TADOX® involves UV-Photo catalysis as an Advanced Oxidation Process (AOP), leading to oxidative degradation and mineralization of targeted pollutants. It also involves, novel approaches that make very little use of chemicals in the overall treatment leading to a reduced quantum of sludge, and preventing secondary pollution.

Treatment within a few hours holds a great scope of augmentation and enhanced treatment capacity of existing STPs, ETPs and CETPs. This technology can be adopted as advanced decentralized wastewater treatment technology/micro STP for point source pollution abatement across SMSE industry clusters, municipal sewage, open drains, landfill leachates etc. enabling safer urban sanitation, health, and environment.

KEY FEATURES

- Treated water quality meets CPCB & NGT discharge norms as well as non-portable water reuse applications
- 75% less use of chemicals as compared to other treatment systems
- Reduced treatment time from 36-48 hrs to 14-16 hrs
- Reduced Capex (15%-20% less) and Opex (30%-40% less)

Implemented Projects

Treatment of Textile wastewater in 20 KLD TADOX-based wastewater treatment plant in Kanpur:

The first 20,000 litres per day (20 KLD) TADOX® Plant at Textile CETP in Kanpur has been developed through funding from the National Mission for Clean Ganga (NMCG), Ministry of Jal Shakti, Govt of India. The Rooma Pollution Control Association (RCPA) of Kanpur adopted TADOX technology in the CETP of the textile cluster to optimize the wastewater treatment efficiency, improve the quality of treated water and increase water reuse efficiency. TADOX® treatment removed colour & toxicity and improved biodegradability, which makes the biological treatment system shock-prone.

Treatment of Sewage in 10 KLD TADOX-based wastewater treatment plant in TERI Gurugram Campus:

The 10 KLD TADOX®-based Wastewater Treatment Plant commissioned in Aug 2020, is running successfully for treating mixed Sewage consisting of effluents from research laboratories, soil lab, canteen, hostel and toilets in the TERI Gurugram campus. The mixed effluent is directly collected from the underground sump and no stream segregation is done. Direct TADOX treatment is given which takes only 5 hours without any pre-biological treatment.



Treatment of Textile wastewater in 20 KLD TADOX based wastewater treatment plant in Kanpur



Treatment of Sewage in 10 KLD TADOX based wastewater treatment plant in TERI Gurugram Campus

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RIVER CITIES ALLIANCE
A city led movement



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