Overview of CSE – NMCG Capacity Building Initiative
CSE-NMCG Launch Event

“Making Ganga Basin Cities Water Sensitive”

About the Event & Webinar

Aim
Capacity building and action research for promoting sustainable urban water management in Ganga basin cities for improved river health/flows.

Objective
- Develop understanding of the concept and approach of Water Sensitive Urban Design and Planning (WSUDP)
- Discuss potential and opportunities for connecting water, urban planning/development in the Ganga basin cities.
- Case studies of successfully implemented WSUDP projects.
- Provide overview activities under the CSE – NMCG initiative during 3 years (2021-24)
- Present the Calendar of Activities in Year 1 (2021-22).
- 3 Indian cities greater than 10 million, 53 cities more than 1 million

- 377 million live in about 8000 urban centres.
Ganga basin has 2,009 statutory towns, with an urban population of 165.2 million, as per Census of India 2011 includes 100 + Class I cities, and at least 6 metropolitan cities including National Capital Territory of Delhi, state capitals Lucknow, Patna, Dehradun.

Urban built-up area has increased approximately 44% from 10,512 sq. km. in 2005-06 to 15,138 sq. km.

Widening water demand – supply across different sectors resulting several river stretches in river Ganga with non-existent flow as well as overexploited aquifers.

Urban Lakes and ponds are deteriorating and being encroached resulting alarming, impacting both quality and quantity of water in drains and rivers, and the incapability to manage moderate and extreme rainfall events.

Inadequate sewage treatment (incl. conveyance) and reuse of treated wastewater
Co-existence of Overexploited Groundwater & Urban Flooding

Urban Water Management in Smart Cities in India
Co-existence of Water Shortage & Abundance:

Water Scenario

Drainage Scenario
Ganga Basin Cities – under various National / State Programme

All Urban & Rural areas under Swachh Bharat Mission, Jal Jeewan Mission & Jal Shakti Mission

Out of 500 AMRUT cities, 261 are in Ganga Basin

Out of 100 Smart Cities, 31 are under Ganga Basin

Out of 118 NMCG Priority towns /cities (in the main Stem States) -
54 AMRUT Cities & 8 Smart cities
Increasing intensities and decreasing number of days it rains... rapidly urbanising river basin

Key Urban Challenges

Rapid Urbanization resulting change in Urban Water Balance
Water Sensitive Cities - Approach

- **Protecting** local waterbodies (lakes, ponds and wetlands) for supplementary water sources

- **Storm-water management at public places**, including open areas in cities

- **Increasing water-conservation approaches at various scales** (buildings/campus).

**On-site water conservation** with rainwater harvesting (RWH) is important to reduce water scarcity **incl. use of treated wastewater**
WSUDP APPROACH ON DIFFERENT SCALES

1. WATER-SENSITIVE PLANNING (CITY/ZONAL SCALE)
   - Decentralized wastewater treatment system for reuse
   - Minimize the use of hard engineered structures
   - Reduce pressure on infrastructure and flood risk by using water on a strategic scale
   - Minimize sewage discharge to the natural environment
   - Protect existing natural features and ecological processes
   - Maintain the natural hydrological behaviour of catchments
   - Allow surface runoff to infiltrate
   - Integrate water to landscape to enhance visual, social, cultural and ecological values
   - Reduce flooding at the downstream end of catchment area

2. WATER-SENSITIVE DESIGNING (NEIGHBOURHOOD SCALE)
   - Rainwater harvesting: Rainwater collection from roofs in front raingarden
   - Lengthening flow paths: Diverting the drainage flow to bigger areas and open swales
   - Reduce/minimize impermeability, preserve more trees and make permeable paving within residential streets
   - Buffer treatment zone for pollution abatement of water body

3. WATER-SENSITIVE DESIGNING (INDIVIDUAL SCALE)
   - Greywater reuse
   - Rainwater harvesting: Harvests runoff from roofs and provides stored water source on dry days for the gardening
   - Water efficient fixtures and appliances
   - Xeriscape: Use of native plants for landscaping
CSE Research Reports:
Mainstreaming Water sensitive Urban Design (WSUDP) in India in Policy & Practice

CSE Publication July & Nov. 2020

C-GINS
Compendium of Green Infrastructure Network systems
https://www.cseindia.org/c-gins/home

Web compendium
Launched in January 2021
CSE-NMCG Launch Event
“Making Ganga Basin Cities Water Sensitive”

About the Event & Webinar

**Title:** Capacity building and action research initiative (3-year duration project) on making water sensitive cities in the Ganga basin aimed at improving river health/flows.

**Key focus areas:** Water Sensitive Urban Design and Planning, Urban Water Efficiency and Conservation, Decentralized Wastewater Treatment and Local Reuse, Urban Groundwater Management and Urban Waterbodies / Lake Management.

The initiative is aimed at engaging 1300+ number state / municipal functionaries and other sector players involved in promoting sustainable urban water management.

*It is a part of the series of ongoing efforts by NMCG aimed to ensuring convergence of Namami Gange Mission with national flagship urban missions (AMRUT, Smart Cities, Swachh Bharat Mission, HRIDAY, NULM) and other missions (Atal Bhujal Yojana, Jal Jeewan Mission, Jal Shakti Mission) at state /city level across Ganga basin states.*
Three Year Activity Plan:

# 40+ activities over 3 year - 24 Training (incl. 12 no. online) , 12 webinars , annual knowledge conclaves & field exposure visits for capacity building of 1300+ state / development authorities / municipal functionaries

# Develop Practitioner’s Guide ( 5 no.s) on thematic focus areas

# Helpdesk & Web portal for handholding support to design and implement model WSUDP intervention as model projects
## CSE-NMCG Launch Event

“Making Ganga Basin Cities Water Sensitive”

### Event Calendar 2021

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<thead>
<tr>
<th>Name of the Event</th>
<th>Date</th>
<th>Type of Activity</th>
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<tbody>
<tr>
<td>Launch Meeting for CSE-NMCG Capacity building Initiative</td>
<td>27th of July</td>
<td>Webinar</td>
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<tr>
<td>WSUDP (Focus on Rainwater Harvesting) in Ganga basin cities</td>
<td>27th of July</td>
<td>Webinar</td>
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<td>Urban Ground Water Management in Ganga Basin cities</td>
<td>4th of August</td>
<td>Webinar</td>
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<td>Training on Urban Groundwater Management for Ganga basin cities</td>
<td>1st - 10th of September</td>
<td>Online Training</td>
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<td>Training on WSUDP (Focus on Rainwater Harvesting) in Ganga basin cities</td>
<td>2nd-10th of September</td>
<td>Online Training</td>
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<tr>
<td>Training on Decentralized Wastewater Treatment Systems</td>
<td>15th-28th of September</td>
<td>Online Training</td>
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<td>Training on Urban Groundwater Management for Ganga basin cities</td>
<td>5th - 8th of October</td>
<td>Residential Training</td>
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<tr>
<td>Urban Lake Management in Ganga basin cities</td>
<td>12th of October</td>
<td>Webinar</td>
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<tr>
<td>Water Efficiency and Conservation in Ganga Basin cities</td>
<td>16th of November</td>
<td>Webinar</td>
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<tr>
<td>Training on Water Efficiency and Conservation</td>
<td>17th of 27th of November</td>
<td>Online Training</td>
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<tr>
<td>Training on WSUDP (Focus on Rainwater Harvesting) for Ganga basin cities</td>
<td>7th - 10th of December</td>
<td>Residential Training</td>
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<tr>
<td>Training on Urban Lake Management for Ganga basin cities</td>
<td>8th - 15th of December</td>
<td>Online Training</td>
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<tr>
<td>Training on Decentralized Wastewater Treatment Systems</td>
<td>14th - 17th of December</td>
<td>Residential Training</td>
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**Expert Planning & Advisory group**

### Theme 1: Water Sensitive Urban Design & Planning

- **Venkatesh Dutta**
  - Professor, NCRUET, JEE Harifndra, Lucknow
- **R. J. Thomas**
  - Managing Director, EEPCG, India
- **Himanshu Joshi**
  - Professor, Department of Hydrology, IIT Roorkee
- **Deepak Khare**
  - Professor, Water Resources Development & Management, IIT Roorkee
- **Manu Bhatnagar**
  - Principal Director, Natural Heritage Division, INACH, New Delhi
- **Somnath Sen**
  - Associate Professor, IIT Kharagpur
- **Sumit Sen**
  - Head and Associate Professor, Department of Hydrology, IIT Roorkee
- **Nadeem Khali**
  - Professor, Department of Civil Engineering, Aligarh Muslim University

### Theme 2: Groundwater and Urban Lake Management in Urban Areas

- **S.K. Sharma**
  - Groundwater Expert, Former Member (Technical), CGWB
- **Rajiv Sinha**
  - Professor, Department of Earth Sciences, IIT Kanpur
- **Somnath Bandopadhyay**
  - Associate Professor, Nalanda University, Bihar
- **Shashank Shukla**
  - Professor (Geology), Delhi University
- **Mohit Ray**
  - Independent Environmental Consultant & Activist
- **K.J. Anandhika Kumar**
  - Scientist, Director, Geochemistry (India), CGWB
- **Maansklri Ekno**
  - Head, Dept of Environment Planning, SPA, Delhi
- **Ritesh Kumar**
  - Head, Water, International, South Asia, WI-SFA
- **Faiyaj Khusa**
  - Scientist In-charge, Yamuna Biodiversity park
A teaching - learning and innovation centre that is designed to find appropriate and affordable solutions for key problems of India and the global south.