

Webinar Series on ‘Towards Water Sensitive Cities - Experience of Approach and Practices in Australia and India’

Proceedings Webinar 2- Case studies on “water sensitive cities” practices from Australia and India

Date: 25 Nov., 2020 | **Time:** 10-12 Noon (IST) / 6.30-8.00AM (CEST) / 3.30-5:30PM (AEDT)

Centre for Science and Environment (CSE), India has organised a two-part webinar series on ‘**Towards Water Sensitive Cities - Experience of Approach and Practices in Australia and India**’ in partnership with Cooperative Research Centre for Water Sensitive Cities (CRCWSC), Australia and Alluvium, Australia. The webinar series is aimed at increasing awareness and advocating for the planning and design of water sensitive cities in India, and to share experiences from both countries.

The second webinar of this series, ‘**Case studies on “water sensitive cities” practices from Australia and India**’ was held on 25 Nov., 2020. The webinar was moderated by Dr Suresh Kumar Rohilla, Senior Director, CSE and Dr Harry Virahsawmy, Urban Water Specialist, Alluvium. The webinar had more than 1,200 attendees.

The webinar was kickstarted by Dr Rohilla, where he introduced the speakers and panellists, and provided context for the webinar. He briefed about the objectives of the webinar and outlined the agenda for the day. Dr Virahsawmy gave a recap of *Webinar 1: Towards Water Sensitive Cities in Australia and India*, throwing light on the journey of water-sensitive cities in Australia. He also gave a brief overview of principles of water-sensitive cities, and the instruments for transitioning.

India’s journey towards water-sensitive cities was showcased by Dr Rohilla and Ms Shivali Jainer, Programme Manager, CSE. Dr Rohilla highlighted the key issues related to urban water management in Smart Cities and AMRUT Cities in India. Urban flooding, declining groundwater table, pollution, dwindling and inequitable water supply and loss of local water bodies is common in all urban centres in India. He provided key learnings from CSE research, on using public open spaces and local water bodies as critical green infrastructure, in order to address these issues, and leapfrogging to a water-sensitive city.

He showcased that how traditional Indian cities were built around water-sensitive cities principles, which were lost with the advent of Victorian engineering during colonial times and post-independence. It was also realised that post-2000, water-sensitivity is reflected in all national level programmes on urban infrastructure and urban planning and development.

Ms Jainer introduced the different scales of decentralisation of WSUDP interventions, and the potential and opportunities of open spaces in various land uses in cities. It was shown that as much as 74% of land is open space in various land uses, which can be utilised for WSUDP interventions. She showcased various case studies on WSUDP: At the city scale, the case of NOIDA was discussed, where it was seen that as much as 27% of the city’s water demand can be met by stormwater harvesting in public parks and open spaces.

At the neighbourhood scale, RWH system at Umaid Heritage Township in Jodhpur (city with high aridity) and Nizamuddin (East) Colony in Delhi were presented. A total of 17.1 million litres of rainwater is harvested annually in Umaid Heritage Township (used for horticulture purposes) and a total of 48.5 million litres of rainwater is harvested annually in Nizamuddin (East), which used for groundwater recharge and address issues of urban flooding. The green campus design for IIT Jodhpur was also presented, in which WSUD features are designed as per the natural topography of the site.

The Indian case studies were concluded with local treatment and reuse of wastewater at Indian Agriculture Research Institute, Delhi and Lodhi Gardens, Delhi and the CSE water neutral campus Anil Agarwal Environment Training Institute, Alwar. Ms Jainer concluded with CSE research on WSUDP and

the roadmap for implementation of WSUDP in urban areas of Odisha and in the NCT of Delhi, where only 1-3% of the park areas can be utilized for harvesting millions of litres of rain/stormwater.

Mr Dan O' Halloran, Integrated Water Management Specialist, Alluvium showcased the case study of the City of Melton (city with high aridity), and how the passive irrigation of street using run-off from roads. The Integrated Water Management Plan for the City of Melton was prepared, focussing on reduced reliance on potable water, healthy waterways and wetlands, and valued landscapes that are connected and accessible. The passive irrigation scheme has resulted in a 20% reduction in run-off, and plantation of 130,000 trees.

Mr Halloran also presented the case of Stamford Park, in which 4,000 KL of stormwater is used annually for horticulture purposes, and has a 6,000 KL / year reduction in demand for potable water, and 42% reduction in stormwater run-off. He concluded with the various challenges and lessons in implementation of WSUD projects. Challenges include justification of costs, organisational agreement and integration with other services.

Ms Caroline Carvalho, Principal Consultant, Alluvium, showcased the case study of the south-east part of Melbourne, where various WSUD projects were implemented for addressing issues related to urban flooding, pollution abatement in Dandenong Creek and its naturalisation, and providing various other ecosystem services. Ms Carvalho provided key insights of how public open spaces were transformed from single use and inaccessible spaces, to multi-purpose open spaces, addressing issues related to urban flooding, treating stormwater and elevating the aesthetics of the space. She focussed on creation of landscapes and not infrastructure, and the role of community participation and awareness in the successful implementation and scale-up of WSUD features.

Mr Malcolm Eadie, Commercial Manager, CRCWSC presented case studies at different scales. At the housing scale, he presented the Aquarivo Innovation House, Melbourne, which is an innovation hub, in which systems like rainwater to hot water for bathing and washing, local recycle and reuse, and smart systems for response to heavy rainfall events. It has resulted in 75% reduction in potable water use and 25% reduction in peak stormwater run-off. At the neighbourhood scale, he showcased the Victoria Park Redevelopment in Sydney, in which the park is redesigned on the principles of WSUD, addressing issues related to urban flooding, and treating the stormwater on-site. Mr Eadie concluded his presentation with a city-scale case study: City of Orange Stormwater to Potable Water Security Scheme

The presentations were followed by a panel discussion, around the relevance of these various case studies, how they can be adopted in the Indian context and what are the long-term opportunities in different greenfield and brownfield developments. Dr Vijay Kumar Chaurasia, Joint Advisor (Public Health and Environment Engineering), Central Public Health and Environmental Engineering Organisation (CPHEEO), Govt. of India urged the adoption of the circular economy model and how the WSUD principles provide the opportunity for doing so.

Mr Manu Bhatnagar, Principal Director, Natural Heritage, INTACH argued the need to an enabling policy framework for implementation and scaling up of WSUD interventions in India. He also focussed on the demand management in urban India, along with storing and using rain/stormwater, to be utilised for the entire year. Mr Bhatnagar also called for more successful pilot cases, as pilots influences policies.

Dr Hina Zia, Head, Dept. of Architecture and Ekistics, Jamia Milia Islamia talked about how the existing capacities of education institutions need to be augmented with updated curriculum to include WSUD education in architects, planners, engineers, etc. Mr Rajneesh Sareen, Programme Director, Sustainable Building and Habitat, CSE argued that sensitivity towards water should reflect at all scales, and the need of the hour is to decentralise these systems. He also argued that

retrofitting solutions are more cost-intensive, and we need WSUD to inculcate at the policy and planning stage.

The presentations were concluded with a brief talk by Mr Gopi Shankar, Director (Trade and Industry), Global Victoria (India Office) on potential of working in Indian cities and other parts of South Asia, fostering dialogue and discussion among various stakeholders. The webinar was closed with a vote of thanks.