Summary Report – International Workshop on "Urban Floods"

27-29 June 2018

Venue: Divecha Centre for Climate Change (DCCC) and Interdisciplinary Center for Water Research (ICWaR), IISc Bangalore

A three-day International Workshop on "Urban Floods" was organized jointly by the Interdisciplinary Center for Water Research (ICWaR) and the Divecha Centre for Climate Change (DCCC), during 27 – 29 June 2018, at Indian Institute of Science (IISc), Bangalore. The primary purpose of the workshop is to bring together the international experience in dealing with the increasing frequencies of urban floods across the world. The workshop consisted of plenary talks by colleagues from different organisations of India and worldwide including Paris, Canada, Malaysia, Sri Lanka, Nepal. In addition, several discussion sessions, including open discussion and panel discussion, were conducted during the three days to discuss about the various aspects of urban flooding.

Prof. J. Srinivasan welcomed the participants on behalf of the Divecha Centre for Climate Change and Prof. P.P. Mujumdar introduced the purpose of the workshop. A wide range of topics were covered during the talks, such as international experiences in dealing the floods in urban areas, practical links for adaptation to global climate change, identifying and analysing the resilience and interdependencies of water sectors, sustainable development including the state-of-the-art methodologies, changes in the paradigm and assessment of drivers for change, research aspects of modelling urban precipitation and flooding, experience from case studies in Indian cities, like Chennai and Mumbai.

The participants were divided into four groups to discuss about aspects of urban flood management such as the technology driven solutions, non-structural measures, policy interventions, and societal responses. Group 1 discussed about preparedness, response, recovery and auxiliary attributes where the politicians, industrialists, stakeholders, researchers and academicians need to collaborate to work on pre and post-controlling of urban floods. Group 2 concluded that the regulating land use and micro-catchment management may play a vital role in reduction of flood impacts. Moreover, maintaining a database of flood footprints will help in further research studies. Regarding policy intervention, Group 3 suggested forming a national repository of data and flood models, which can be accessed by practitioners, decision makers and researchers. It was also suggested to prepare a disaster management plan for the city and set a legal framework for its implementation. Group 4 discussed about the importance of society during post flood response and emphasized on local capacity building and awareness programs to be included in urban flood mitigation strategies.

An open discussion, led by Dr. Balaji Narasimhan, was carried out focussing on four phases of urban flood management i.e. preparedness, response, recovery and mitigation. The 'preparedness' requires (i) reliable forecasting with lead times of 1 to 3 days, (ii) proper land use planning, (iii) using feasible flood monitoring techniques (weather Radar, water level recorders, telemetry stations) and (iv) taking actions like relocation of vulnerable groups and framing a detailed standard operating procedure (SOP) stating specific roles and responsibilities of various hierarchies. The 'response' deals with immediate initiation of evacuation and relief actions, and dewatering the flooded areas while identifying appropriate flood absorbers. The 'recovery' deals

with the rehabilitation of the affected community, reconstruction process and structuring the flood insurance policies and compensation reclamation. The 'mitigation' involves efficient planning, implementing BMPs (Best Management Practices) and LID (Low Impact Development) structures, revising the old land use regulations and policies, and adopting 'build back better' approach.

Lastly, a panel discussion, led by Prof. Slobodan Simonovic, was conducted to discuss urban floods from different perspectives viz. R Sreedhar on field/ practitioner perspective, Dato'Ir. Ahmad Fuad Embi on political/decision-maker perspective, Dr. Bhanu Neupane on knowledge and social perspective and Prof. Slobodan Simonovic on academic perspective. The summary of the panel discussion is as follows:

1) Field/ Practitioner Perspective:
    - Data scarcity has significant influence on decisions making in field.
    - The encroachment in storm water drains results in reduced water carrying capacities.
    - The solid waste disposal is one of the major causes of urban floods so a policy must be developed based on incentive, penalty approaches.
    - The response mechanism must be focused more on vulnerable groups and the flood information must be disseminated to these groups on a priority.
2) Politician/ Decision-Maker Perspective:
    - The researchers and practitioners must be adequately prepared with "Evidence based" plans to convince the politician and demonstrate the necessity of the immediate action.
    - The practitioners and researchers must also provide alternative options/plans for better flexibility to decision making.
3) Knowledge and Social Perspective:
    - There is improper knowledge downscaling i.e. disconnect of knowledge transfer between decision makers and end users.
    - Knowledge sharing and learning from existing case studies may help in preparing better mitigation and response strategies.
    - Open access of scientific knowledge to end users may facilitate knowledge transfer.
4) Academic Perspective:
    - The academic institutions should launch new and dedicated courses which are pertaining to recent research challenges.
    - The academic institutions should conduct various awareness programs on societal responses of pre flood, during flood and post flood.
    - There should be sufficient funding available for institutes to produce high quality research.
    - There should be an effective consortium consisting of academicians, industrialists and public sector to address various research challenges.

Prof. Mujumdar concluded the workshop by emphasizing the importance of understanding the problem of urban flooding from a multi-disciplinary perspective. Lastly, he thanked all the participants and resource persons for their valuable contribution to the workshop.