

Hosted by  
**WORLD BANK GROUP**  
Water

## SEMINAR PROCEEDINGS

### Water Resources Management – Advances in Technology and Governance

Date	Monday, April 29, 2019
Time	10.00 AM – 4.30 PM
Venue	Hotel Taj West End, Bengaluru
Participants	Engineers and technology practitioners from the Government, private sector companies, financial institutions, academic institutions, as well as Not for Profit organisations
Objective	Review of conservation management in light of advances in technologies such as satellite, sensor and drone, statistical analysis tools, etc., and data based monitoring systems for smart future policies in water
Key take-aways outcomes and way forward	<p>The Seminar, while appraising stakeholders in latest technology trends relevant to water management, also helped to identify key themes that need further research and policy directions. These included,</p> <ul style="list-style-type: none"><li>• Prudent deployment of technologies for water-awareness at community level,</li><li>• Creation of water-dashboards and web-based platforms for dissemination of water practices,</li><li>• Development of water policies towards resilient urban water management,</li><li>• Comprehensive policies for balanced ground water and surface water management,</li><li>• Enabling environment for sustainable private sector participation in water management.</li></ul>

#### About the Seminar

Indian Institute of Science (IISc) in collaboration with 2030 Water Resources Group (2030WRG) conducted a seminar to facilitate discussions on Innovative solutions and the critical role of governance for water conservation across three themes,

1. Agri-water management,
2. Urban-water management,
3. Governance and Policy.

Under each of the above themes, two lead talks and three technical presentations were showcased by practitioners of technology trends, including senior managers and experts from Academic Institutions, Civil Society, and Industry. Each theme was also discussed by an illustrious panel comprising eminent decision makers and practitioners, providing rich interactions in water management, and helping to co-create a live platform for discussions on ground level constraints, technological solutions and policies to address challenges in water.





## Seminar Proceedings

The seminar witnessed informative talks by National research institutes, and rich presentations by practitioners of technologies in water. While apprised of the latest technologies and commensurate policies, participants also witnessed interactions in matters and questions related to technology and governance.

The inaugural session was chaired by **Shri. Rakesh Singh, Principal Secretary, Water Resources Department, Karnataka**. As part of the presentations at the session, **Shri. L K Atheeq, Principal Secretary, Rural Development and Panchayat Raj**, delineated the objectives of the '**Jalamrutha**' scheme, and its aims to enhance the sensitivity of challenges related to water conservation, with collaboration with the private sector. **Shri. Jaiprakash, Secretary, Water Resources Department**, explained the overview of the water resources in Karnataka and the steps by the State Government in allocation of water among the various sectors in state. **Dr. Sekhar Muddu, Indian Institute of Science, Bengaluru**, provided the status of ground water resources in Karnataka, its use and the potential for use of geo-mapping for efficient use of ground water.

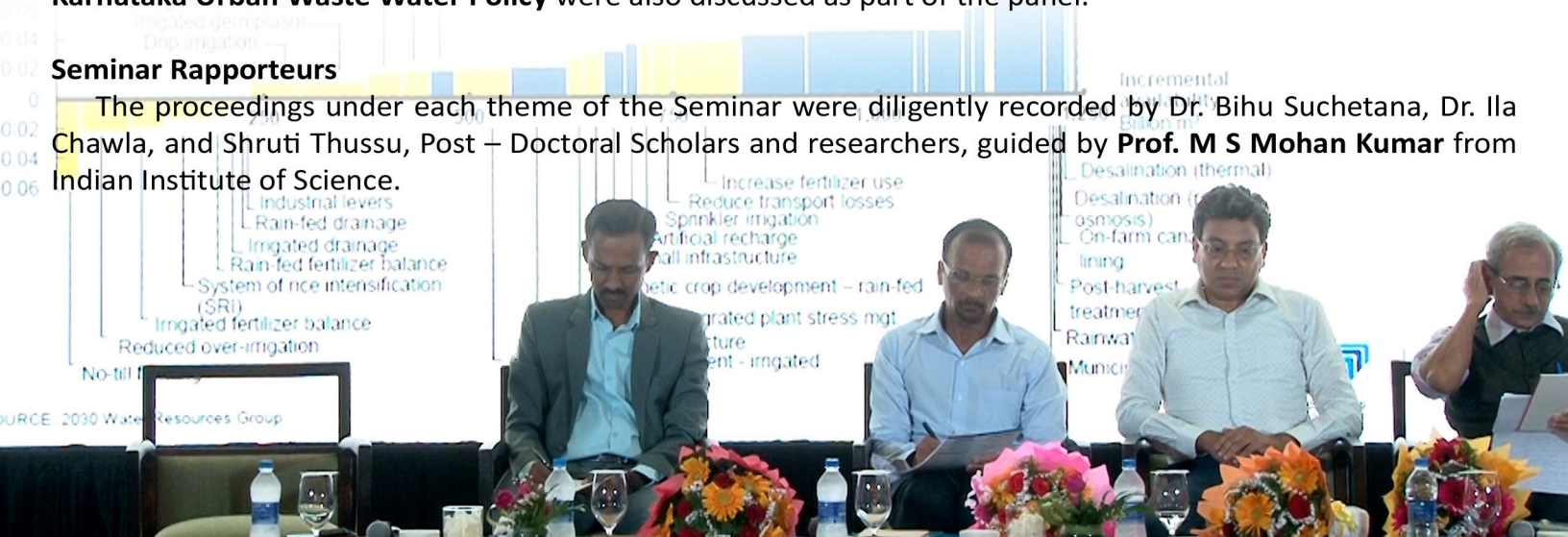
The Agri-Water Management panel discussions were chaired by Prof. Aravind Galagali, KLE technical society. The panel discussed the various means through which technologies such as **model studies, flow measurements, GIS (Geographic Information Systems), and Drones** can be effectively utilized for improved water conservation. The panel discussions included lead talks by eminent National research institutes such as Central Water and Power Research Station, Fluid Control Research Institute, Indian Institute of Science, as well as presentations from practitioners of technologies such as Skymet Weather Services, and Netafim Limited. As part of the session, the chair also provided examples of the **technology in use** at Ramthal Micro Irrigation project at Hundgund, Bagalkote, Karnataka.

The Urban-Water management panel, chaired by Shri. Anjum Parwez, Principal Secretary, Urban Development Department, Karnataka provided participants with knowledge sessions on the **technology solutions applicable in urban water**. The lead talks, presented by National Environmental Engineering Research Institute and Biome Environmental Trust, addressed the various solutions demonstrated in **environment management and ground water recharge**. The presentations by Indian Institute of Science and Canary Systems Private Limited, helped participants to understand the provident use of **technologies for storm water drain management, and bulk water supply in urban cities**. The presentation by Swedish Trade/IKEA provided examples of practical use of **technologies to build resilience** in urban cities.

The Governance and policy panel discussions, chaired by Shri. Mahendra Jain, Additional Chief Secretary, Urban Development, Karnataka, gave an overview of the **benefits of robust policies related to water management**, and the examples of **technology based initiatives such as Waste Water Reuse Certificates, and Hackathon initiated by 2030WRG** in Maharashtra. The presentations at the panel also included the challenges and opportunities for **technological solutions and interventions in urban water supply and waste management**. The solutions through Integrated Water Resources Management and **guidelines under the Karnataka Urban Waste Water Policy** were also discussed as part of the panel.

## Seminar Rapporteurs

The proceedings under each theme of the Seminar were diligently recorded by Dr. Bihu Suchetana, Dr. Ila Chawla, and Shruti Thussu, Post – Doctoral Scholars and researchers, guided by **Prof. M S Mohan Kumar** from Indian Institute of Science.





## List of Seminar Participants

Organisation	Activity
• Water Resources Department, Karnataka	Government
• Urban Development Department, Karnataka	Government
• Rural Development and Panchayat Raj, Karnataka	Government
• KIADB	Government
• Central Water and Power Research Station	Research Institute
• Fluid Control Research Institute	Research Institute
• National Environmental Engineering Research Institute	Research Institute
• Canary Systems Private Limited	Geo Satellite Monitoring
• Swedish Trade	Trade Facilitation
• Israel Trade	Trade Facilitation
• IKEA	Manufacturing
• Price Waterhouse Coopers	Consultants
• Skymet Weather Services Private Limited	Geo Satellite Monitoring
• Netafim Limited	Micro Irrigation Projects
• Advanced Centre –IWRM, Bangalore	Research & Policy
• Krishna Bhagya Jala Nigam Limited	Water Resources
• Krishna Neeravari Nigam Limited	Water Resources
• Cauvery Neeravari Nigam Limited	Water Resources
• Water Resources Development Organisation	Water Resources
• H&M	Apparel / Retail
• National Law School India University	Academia
• Indian Institute of Science	Academia
• Biome Environmental Trust	Civil Society

### Participant Profile

The Seminar participants included engineers and technology practitioners from the Government, private sector companies, financial institutions, academic institutions, as well as Not for Profit organisations.





# Programme Agenda

## Inaugural Session

- 09.15 - 09.45 : Registration
- 09.45 - 09.55 : Welcome by L V Nagarajan, Senior Advisor, 2030WRG
- 09.55 - 10.05 : Inaugural Address by Prof. M S Mohan Kumar, Indian Institute of Science, Bangalore
- 10.05 - 10.15 : Challenges in Ground Water Management, by Prof. Sekhar Muddu, Indian Institute of Science
- 10.15 - 10.25 : "Year of Water" by L K Atheeq, I.A.S, Principal Secretary, Rural Development and Panchayat Raj, Karnataka
- 10.25 - 10.35 : Karnataka Perspective and the Water Agenda, by K Jaiprakash, Secretary to Government, Water Resources Department, Karnataka
- 10.35 - 11.00 : Tea Break

## Session I: Agri Water Management – Technology Trends

- 11.00 - 11.10 : Model Studies by Smt. V V Bhosekar, Director, Central Water and Power Research Station
- 11.10 - 11.20 : Flow Measurements by Gopan C K, Senior Research Engineer, Fluid Control Research Institute Tech Presentations
- 11.20 - 11.40 : Lecture 1 – Remote sensing tools for water resources assessment, by Prof. Nagesh Kumar, IISc
- 11.40 - 12.00 : Lecture 2 – Drones in Flood Management, by Sudhakar Manda, M/s. Skymet Weather Services Private Limited
- 12.00 - 12.20 : Lecture 3 – Technology in Action: Ramthal, by Girish Deshpande, Project Manager, Netafim
- 12.20 - 12.30 : Q&A / Final Comments by Chair – Prof. Aravind Galagali, KLE Technical University

## Session II: Urban Water Management – Technology Trends

- 12.30 - 12.40 : Technology and Environmental Concerns by Dr. Pawan Labhasetwar, Principal Scientist, National Environmental Engineering Research Institute
- 12.40 - 12.50 : Ground level citizen initiatives in Water by S. Vishwanath, M/s. Biome Environmental Trust Tech Presentations
- 12.50 - 13.10 : Lecture 1 – Sensors and Analytics in Water Management, by Prof. Yogesh Simhan, IISc
- 13.10 - 13.30 : Lecture 2 – Quantity and Quality flow measurements, by Pushpraj Shetty, M/s. Canary Systems Private Limited.
- 13.30 - 13.50 : Lecture 3 – Clean Water Management Practices by Sofia Berglund, Swedish Trade/ IKEA
- 13.50 - 14.00 : Q&A / Final Comments by Chair, Shri. Anjum Parwez, I.A.S, Principal Secretary – Urban Development Department, Karnataka
- 14.00 - 14.45 : Lunch

## Session III: Governance and Policy – Recent Trends

- 14.45 - 14.55 : Technology based incentives in WWR, by Ajith Radhakrishnan, 2030WRG
- 14.55 - 15.05 : Policy and Water, by Prof. M K Ramesh, National Law School India University
- 15.05 - 15.25 : Lecture 1 – Bangalore Water, by Tushar Girinath, I.A.S, Chairman, Bangalore Water Supply and Sewerage Board
- 15.25 - 15.45 : Lecture 2 – Integrated Water Resources Management, by Manohar Rotte, Advanced Centre –IWRM, Bangalore
- 15.45 - 16.05 : Lecture 3 – Waste Water Reuse Policy, Karnataka by Nitin Verma, 2030WRG
- 16.05 - 16.15 : Q&A / Final Comments by Chair, Shri. Mahendra Jain, I.A.S, Additional Chief Secretary – Urban Development Department, Karnataka

## Closing Session (1615 – 1630)

- 16.15 - 16.25 : Summary of interactions – Prof. Mohan Kumar, IISc
- 16.25 - 16.35 : Closing address by Ravi Narayanan, Co-Chair, Karnataka MSP Steering Board
- 16.35 : Hi Tea

