



Centre for Science and Environment

## ASIA AFRICA WORKSHOP ON SMART AND AFFORDABLE MONITORING

Venue:  
Anil Agarwal Environment Training Institute, Alwar Rajasthan  
5<sup>th</sup> – 7<sup>th</sup> February 2018

Day 1: 5 February, 2018			
SESSION 1: INAUGURAL SESSION			
Time	Topic	Speaker	
9:00 – 9:30	Registration	Digvijay Singh Bisht, Hetal Modi	
9:30 – 10:00	Welcome and Introduction	Chandra Bhushan	
10:00 – 11:15	Environmental monitoring frameworks in Africa	Sean Adrian Khan	
	Environmental monitoring frameworks in South Asia	J S Kamyotra	
Tea break (11:15 – 11:45)			
SESSION 2: STATUS OF MONITORING Session Chair: Chandra Bhushan			
11:45 – 1:15	<b>Country level initiatives and status of environmental monitoring in Global South</b> <ul style="list-style-type: none"> <li>• Bangladesh</li> <li>• Sri Lanka</li> <li>• Tanzania</li> <li>• Nigeria</li> <li>• Ghana</li> <li>• Ethiopia</li> <li>• Swaziland</li> <li>• Zanzibar</li> <li>• India</li> </ul>	Representatives from respective country	
Lunch (1:15 – 2:15)			
SESSION 3: PORTABLE & OPEN SOURCE MONITORING TECHNOLOGY Session Chair: Vasu Kilaru			
2:15 – 2:35	Smart and affordable environmental monitoring: UNEP's initiative	Sean Adrian Khan	
2:35 – 3:00	Air Quality Monitoring – US EPA experience	Vasu Kilaru	
3:00 – 3:45	Portable ambient air quality monitoring systems: An experience with technology options	Personal Air quality Monitoring System	Ragoth Sundararajan
		India Open Data Association	Mrutyunjay Mishra
		Common data platform for air quality sensors	Buddha Dev Burman
Tea (3:45 – 4:15)			
SESSION 4: COMMUNITY & CIVIL SOCIETY INITIATIVE Session Chair: Sean Adrian Khan			
4:15 – 4:40	<b>Citizen Monitoring:</b> A case study from the state of California	Gita Kapahi	
4:40 – 5:05	<b>Citizen Monitoring:</b> A case study from DLF Foundation, India	PrakashTewari	
5:05 – 5:30	<b>Air quality monitoring:</b> An experience of Ambient Vs Exposure	Vivek Chattopadhyaya	
5:30 – 6:00	<b>Expert Discussion:</b> Community and civil society initiative towards environmental monitoring	Rakesh Agarwal Vasu Kilaru Ronak Sutaria	



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### Day 2: 6 February, 2018

#### SESSION5: PORTABLE WATER QUALITY MONITORING – TECHNOLOGY AND INITIATIVES

Session Chair: Gita Kapahi

9:00 – 9:25	Sensor-based water quality monitoring technology and its use	Suraj P. Chawla
9:25 – 9:50	<b>Field water testing kits:</b> An experience from Tamil Nadu Water Supply and Drainage Board	Vasanthi Lawrence
9:50 – 10:15	Limitations of sensor based water quality monitoring	Vijay Kumar
10:15 – 10:40	Experience of mobile phone application-based handheld kits for water quality monitoring	Ayan Biswas
10:40 – 11:00	Experience of reagent based water quality monitoring kits	Pramod Kumar

#### Tea (11:00 – 11:30)

11:30 – 12:30	<b>PANEL DISCUSSION</b> Need of quality assurance (certification and quality control) of portable technologies	
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#### Lunch (12:30 – 1:30)

#### SESSION 6: CONTINUOUS EMISSION/EFFLUENT MONITORING SYSTEM

Session Chair: J. S. Kamyotra

1:30 – 1:50	<b>Continuous Pollution monitoring systems:</b> Initiative in India and Challenges	Sanjeev K Kanchan
1:50 – 2.10	Experience of Continuous Pollution monitoring framework in Germany	Karsten Pletscher
2:10 – 2:30	<b>Continuous Emission Monitoring:</b> Technology options in use and learnings from experience	Sankar Kannan
2:30 – 2:50	<b>Continuous Effluent Monitoring:</b> Technology options in use and learnings from experience	Sanjeev Gogia
2:50 – 3:10	Regulatory perspective and experience of Continuous pollution monitoring in India	Abhijit Pathak
3:10 – 3:30	<b>OPEN FLOOR DISCUSSION</b>	

#### Tea (3:30 – 4:00)

4:00 – 4:30	Systems of Quality assurance for Continuous emission monitoring	Karsten Pletscher
4:30 – 5:30	<b>CONCLUDING SESSION AND WAY FORWARD</b>	
6:30 onwards	Departure to Tijara Fort for official dinner	

### Day 3: 7 February, 2018

SICK India	SWAN
Horiba	Xylem
Bosch	Urban Sciences
Prima	India Open Data Association
Next Engineering	Tamil Nadu Water Supply And Drainage Board (TWAD)
NEVCO	Development Alternative
Indian School of Innovation and Sustainability (INSIST)	Personal Air Quality Monitoring Systems Pvt. Ltd.



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**Chandra Bhushan**  
*Deputy Director General*  
*Centre for Science and Environment*

Chandra Bhushan is the Deputy Director General of Centre for Science and Environment where he heads the Industry and Environment programme, and the Pollution Monitoring Laboratory, Food Safety and Toxins, Renewable Energy, Climate Change Policy and Advocacy and Training teams. He is also Consulting Editor for the fortnightly *Down To Earth*.



**Anumita Roychowdhury**  
*Executive Director*  
*Centre for Science and Environment*

Anumita Roychowdhury is Executive Director, Research and Advocacy, Centre for Science and Environment, New Delhi. She is in charge of the sustainable cities programme that includes the sub-programmes of Clean Air and Sustainable Mobility and Green Building and Sustainable Habitat.



**J. S. Kamyotra**  
*Member Secretary (Retd.)*  
*Central Pollution Control Board (CPCB)*

J. S. Kamyotra is an alumni of Delhi College Of Engineering and has been the Member Secretary of Central Pollution Control Board, the country's premier environment decision making body, for 5 years. Mr.Kamyotra has over 30 years' experience working in policy formulation, development of environmental standards, establishment of real time monitoring networks in the areas of air quality, water and noise pollution.



**Vasu Kilaru**  
*Physical Scientist*  
*National Exposure Research*  
*Laboratory - USEPA*

Vasu Kilaru is working as a Physical Scientist and is a Project lead in Emerging Measurement Technologies, US Environmental Protection Agency's Office of Research and Development.

His expertise includes spatial analysis, Satellite remote sensing of aerosols, data standards for air sensors and framework, and data architecture for exposure science.



**Dr. Ragoth Sundararajan**  
*Core Team Member*  
*Personal Air Quality Monitoring Systems*  
*Pvt. Ltd.*

Ragoth Sundararajan has done MS (Aero) from IISc, Bangalore, PhD (Atmospheric Science) from Uppsala University, Sweden (Thesis: Coastal Atmospheric Dynamics and Dispersion). He was a researcher at MIT, USA (2002-2007). At MIT, he had worked on global climate modelling, convection modelling, hurricane risk modelling, air chemistry modelling



**Mrutyunjay Mishra**  
*Director*  
*India Open Data*

Mrutyunjay is a recognised expert in data-driven decision-making and a leading commentator on Indian consumer behaviour. He is the Co-Founder of Juxt-Smart Mandate, and Founding Member/Director of India Open Data Association (IODA), Janwaar Castle Community Organisation (JCCO), and CMEE at IIM-Lucknow (Noida Campus).



**Buddha Dev Burman**  
*Mentor*  
*Indian School of Innovation in Sustainability*

Social #EdTech entrepreneur with 17+ years of technical experience. He has worked with Fortune500 companies in various roles, and Co-founded a Tech Company, which was successfully acquired.



**Gita Kapahi**  
*Director*  
*State Water Resources Control Board,*  
*California*

Gita Kapahi is the Director of the Office of Public Participation for the State Water Resources Control Board, and has been since the office was created in late 2007. In this Office, she serves in many capacities, including Ombudsman, Tribal Liaison, Environmental Justice coordinator, and Public Participation consultant. She has been with the Water Boards for 28 years, first as an Environmental Scientist in the Division of Water Quality, then in the Division of Water Rights, serving as Chief of the Bay Delta Unit.



**Colonel Prakash Tewari**  
*Executive Director (Environmental Dept.)*  
*DLF Foundation*

Col Prakash Tewari (Retd) is the, Executive Director - CSR of DLF Ltd. He has been Heading the CSR activities of various Companies in Asia, Africa, Middle East and Australia Continent. He has been awarded the United National Educational Scientific and Cultural Organization (UNESCO) - 2005 award for distinguished Professional Leadership and personal commitment to programs in Asia and Government appreciation letter for exemplary work in conflict areas.



**Vivek Chattopadhyaya**  
*Senior Programme Manager*  
*Centre for Science and Environment*

Vivek Chattopadhyaya is senior program manager of the air pollution control program at the Centre for Science and Environment in New Delhi. At the CSE he has been involved with the public campaign, 'Right to Clean Air' since the year 2000. This campaign is aimed at improving the decision making process related to air quality planning and mobility management, and raise public awareness in cities.



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### **Dr. Rakesh Agarwal**

*President  
Rave Innovation*

For over three decades responsible for manufacturing and R&D activities of the company besides serving as the Managing Director of EIPL for more than 15 years. He has a rich field experience in measurement of air pollution and stack emissions. Credited with developing several instruments appropriate for Indian field conditions.



### **Ronak Sutaria**

*Founder  
Urban Sciences*

Ronak Sutaria has over 16 years of technology architecture, research & solution development experience. Currently, he is the Founder of Mumbai-based UrbanSciences (Respirer Living Sciences Pvt. Ltd.), which works in the field of building Real-time Low-powered Environmental Monitoring Devices and Urban Data Sciences. He has a B.E. in Computer Engineering & M.S in Computer Science. He is currently pursuing his PhD at IIT Bombay.



### **Suraj P. Chawla**

*General Manager  
NEVCO Engineers Pvt. Ltd.*

Suraj Chawla is currently working as a General Manager at NEVCO Engineers Pvt. Ltd. In his career of more than 15 years, he has worked for in various fields of management and environment for some reputed companies.



### **Dr. Vasanthi Lawrance**

*Chief Water Analyst  
Tamil Nadu Water Supply and Drainage Board*

Vasanthi Lawrance is a Chief Water Analyst at Tamil Nadu Water Supply and Drainage. With more than 35 years of her career, she has served as an Assistant Principal at Matriculation School before joining as Junior water analyst at TWAD. She has given various presentations at Conferences on Water quality, surveillance and policy framework. She was also a keynote speaker on "Water Footprint" in relation to Water Management conducted by Confederation of India Industry at Chennai



### **Vijay Kumar**

*Managing Director  
SWAN Environmental Pvt. Ltd.*

Vijay Kumar is Managing Director for SWAN Environmental Pvt. Ltd. He has over 30 years of experience in dealing various technology of Air & Water Quality Monitoring products. Have led and participated in over 100 International Events related to environmental technology. Focused on upcoming technology and served different sectors of Government organizations, institutions and Industries all over India.



### **Dr. D. D. Basu**

*Advisor  
Centre for Science and Environment*

Debadatta Basu joined Central Pollution Control Board in 1976 after completing Master of Science in Chemistry from West Bengal, India. He further obtained Diploma in Environmental Science and Technology (equivalent to MS) from Delft University, the Netherlands. He also did his PhD from Jadavpur University. He was resource person for a workshop

on UN-sponsored programme on Universal Codification at Johannesburg, South Africa. He has published around thirty technical documents and papers in various journals in India and abroad. After retiring from Central Government, he joined Centre for Science and Environment, New Delhi as an advisor for training in India and abroad.



### **Karsten Pletscher**

*Project and test engineer  
TUV Rheinland Energy GmbH, Germany*

Karsten Pletscher (Dipl.-Ing. (FH)) has been working in the Department of Environmental Protection of TÜV Rheinland (with a short interruption) since the year 2000. His activities comprise the active participation in VDI and CEN standardization work groups. His participation in said groups provides him with the latest state of affairs regarding the development of continuous measurement technologies in Germany and Europe.



### **Sanjeev Kanchan**

*Programme Manager  
Centre for Science and Environment*

Sanjeev is an environmental research and advocacy professional at Centre for Science and Environment for last ten years. He is a Certified Sustainability Professional, a TEDx speaker and also associated with UNEP's Global Mercury Partnership- coal-combustion (Geneva), BIS- Management Systems Certification Scheme Committee, International Center for Environment Audit and Sustainable Development, and Global Reporting Initiative (GRI).



### **Sankar Kannan**

*National Manager – Process Automation  
SICK India Pvt.Ltd.*

Sankar Kannan is currently working as Head – Process Automation at SICK India Pvt.Ltd. Experience in Industrial automation, Design and implementation of Continuous Gas Analysis Systems for Emission and Process. He has 21+ years in Automation, during which he has presented various papers on Continuous Emission Monitoring Systems, Mercury Measurement in Stack, Particulate Emission Measurement. He was part of the technical team which worked for the guidelines for CEMS being released by CSE.



### **Abhijit Pathak**

*Scientist C  
Central Pollution Control Board (CPCB)*

Abhijit Pathak is presently employed in Central Pollution Control Board as Scientist 'C'. Trained abroad (in Canada, Germany, Japan and Austria) on analytical (HAPs and VOCs, Dioxins and Furans) and modelling (Receptor modeling for Source Apportionment). Internal auditors for ISO/IEC 17025 and IS 18001:2007 (OH & SMS).

### **Sean Khan**

*Programme Officer, (Science Division)  
United Nations Environment (UNEP)*

### **Dr. R. M. Bhardwaj**

*Additional Director  
Central Pollution Control Board (CPCB)*

### **Ayan Biswas**

*Consultant, Akvo India*

### **Pramod Kumar**

*Manager (Water Quality and Management), Development Alternatives*

### **Sanjeev Gogia**

*CEO, Aaxis Nano*