



About the Academy

National Environmental Science Academy (NESA)

NATIONAL ENVIRONMENTAL SCIENCE ACADEMY was established in 1984 by Founder General Secretary Late Prof. T.R.C. Sinha and was registered in the year 1988 under the Societies Act XXI of 1860 with its Registered Office at Ranchi; shifted to Patna and presently has its Head Office at New Delhi.

Various eminent personalities had graced the academy as its President. The first President of the Academy was Dr. K.C. Bose, Vice-Chancellor of Ranchi University, then Dr. B.S. Attri, Advisor, Ministry of Environment and Forest and Padmabhushan Dr. S.Z. Qasim has been President of the Academy. He is a renowned marine scientist known for his Antarctica mission. He has also served as Secretary of the Dept. of Ocean Development (now Ministry of Earth Sciences); Member, Planning Commission and Vice-Chancellor, Jamia Millia Islamia, New Delhi.

National Environmental Science Academy of India completed its 25 years in 2012. The main aim of present conference is to provide an opportunity to the Environmentalists, Scientists, Academicians, Engineers, Industrialists and Planners of country to share their skills and scientific knowledge for suggesting amicable solutions for the environment related problems presently being faced by the people living in different parts of the nation. The conference will also provide a platform for detailed discussions on advanced researches, made during recent years in Environmental Sciences in relation to Biology, Agriculture, Forests, Industries, Air, Water, Soil Ecosystems, Marine Biology, Atmosphere, Geo-spatial, Chemical and Earth Sciences, Nuclear and Geophysics etc. Interested researchers are invited to register and submit the abstracts of their research work. During the conference, various awards like Fellowships of the Year 2015; Best Scientist awards; Eminent Scientists of the Year 2015; Environmentalists of the Year 2015 and Junior Scientists of the Year 2015 will also be conferred.

For more details, please contact:

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The detail of the conference is also available at following websites:

- (1) UCOST, Dehradun: www.ucost.in
- (2) UJS, Dehradun: uj.s.uk.gov.in
- (3) NASI, UK Chapter, Dehradun: www.ucost.in/works/nasi.html
- (4) TERI/TERI University, New Delhi: www.teriuniversity.ac.in
- (5) DAV (PG) College, Dehradun: www.davpgcollege.com
- (6) NIH, Roorkee: www.nih.ernet.in
- (7) FRI, Dehradun: www.fri.icfre.gov.in



National Conference on Monitoring and Management of Drinking Water Quality (MMDWQ)

&
XXVIII Annual Conference of
National Environmental Science Academy

21-23 December, 2015

at

Uttarakhand State Council for Science and Technology (UCOST)
Vigyan Dham, Jhajra, Dehradun (Uttarakhand)



Organised Jointly by:

National Environmental Science Academy (NESA), New Delhi
Uttarakhand State Council for
Science & Technology (UCOST), Dehradun, Uttarakhand
Uttarakhand Jal Sansthan (UJS), Dehradun
National Academy of Sciences India (NASI), UK Chapter, Dehradun
TERI/TERI University, New Delhi
DAV (PG) College, Dehradun
National Institute of Hydrology (NIH), Roorkee
Forest Research Institute (FRI), Dehradun

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Introduction and Background

Though large amount of drinking water sources are available in country, but contamination and low per capita water availability are two key issues. In fact, water quality problems are caused by pollution and over-exploitation. Both human and natural activities can change the physical, chemical, and biological characteristics of water and have specific ramifications for health of humans and ecosystems.

Water quality is affected by changes in nutrients, sedimentation, temperature, pH, heavy metals, non-metallic toxins, persistent organics and pesticides and biological factors, among many other factors. Human activities like mining, industry and



agriculture can lead to an increase in the mobilization of trace metals like arsenic, cadmium, zinc, copper, mercury, lead and selenium out of soils or waste products into fresh waters.

Heavy metals, though are essential to maintain the metabolism of the human body, but at higher concentrations they can lead to poisoning. They

bio-accumulate resulting in increase in the concentration of a chemical in a biological organism over time, compared to the chemical's concentration in the environment. Heavy metals can enter a water supply by industrial and consumer waste, or even from acidic rain, breaking down soils and releasing heavy metals into streams, lakes, rivers and groundwater. Biological degradation like Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD) and Faecal bacteria (FC) have been found to be exceeded above threshold limits at major pilgrims locations, industrial and pharma zones, and metro cities across the nation.



Direct surface, subsurface and ground waters are still the main source of drinking water in rural areas of India. Over extraction and inadequate recharge are quite common problems. Therefore, poor people have tended to suffer the greatest health burden from inadequate and poor quality water supplies and as a result of poor health, have been unable to escape from the cycle of poverty and waterborne diseases.



The challenges being faced by water resource managers for any given location are a unique combination of mainly factors. Basically, challenges before water managers are of three types: shortage,

surplus and quality. It seems rationalized that effective mitigation measures are needed to cope up with climate and environmental changes along with an adaptive strategy. Innovations in institutional arrangements and management structures are a necessary precondition for tackling the problems of management of supply of good quality and adequate quantity of water for its citizens.

Over the years, rising populations and growing industrialization have pushed up the demand for water. It is the need of the hour to understand surface and groundwater resource potential in respect to aquifers. Water quality decides the extent to which it can be used for the purpose. Thus, quality aspect of water needs to be evaluated thoroughly to meet the ever increasing needs of water for drinking and domestic needs.

Major Themes of the Conference

1. Environmentally and socially acceptable techniques for analyzing and providing good quality of drinking water.
2. Heavy Metals contamination and their mitigation with handling and safe disposal of sludge.

3. **Analysis and treatment of water contamination due to pesticides, pharmaceuticals, cosmetics and other organic pollutants.**
4. **Treatment technologies such as membranes, capacitative de-ionization etc. for efficient and effective removal of biological, chemical and physical impurities in drinking water.**
5. **Novel rapid water contaminant detection sensors/field kits for testing potability of water in conformity to BIS specifications.**
6. **Advanced management strategies for conservation and optimized uses of drinking water**
7. **Geospatial study of water resources in context to human health**
8. **Drinking water problems in Indian Himalayan states**
9. **Use of research & technology issues related to water for better human health and environmental conservation for sustainable social and economic benefits.**

Expected Outcome

With above background, the present conference on water quality issues in drinking water sector is expected to serve the society as well as rural areas of nation with respect to environmental aspects and human health in sustainable manner. The outcomes of the studies to be presented in conference are likely to help in finding solutions of the identified problems either directly or indirectly. The present conference is likely to link various basic and applied sciences disciplines and provide a platform to exchange views and updated knowledge among practitioners/ experts/ researchers/ engineers/ water managers/ academicians/ policy planners/ young scientists working in this area. The overall outcome of the conference is expected to be fruitful in tackling the local environment degradation of our core resource water. A comprehensive understanding of water quality, as a key issue, will provide the knowledge and solution to society, water resource engineers, planners, environmentalist and academia essential in monitoring and management of drinking water sector.

Collaborators

Following resource departments/ research agencies/ organizations would serve as knowledge dissemination partners besides other national agencies/ organizations from Delhi/ other places:

1. **National Environmental Science Academy (NESA), New Delhi**
2. **Uttarakhand State Council for Science and Technology (UCOST), Dehradun**
3. **Uttarakhand Jal Sansthan (UJS), Dehradun**
4. **National Academy of Sciences India (NASI), Uttarakhand (UK) Chapter, Dehradun**
5. **TERI/ TERI University, New Delhi**
6. **D.A.V. (P.G.) College, Dehradun**
7. **National Institute of Hydrology (NIH), Roorkee**
8. **Forest Research Institute (FRI), Dehradun**

Venue and Duration

The venue of the conference will be the campus of “Uttarakhand State Council for Science and Technology (UCOST), Vigyan Dham, Jhajra, Dehradun”.

Uttarakhand State Council for Science and Technology (UCOST), an autonomous body of the Department of Science & Technology, Government of Uttarakhand, is engaged in numerous programmes to promote scientific talent and temper in the Himalayan State. The main activities of UCOST are (i) providing technology based solutions to common problems of the state in key sectors, (ii) making science at the core of the state's strategy for development and (iii) to pursue high-end research through networking mode.

UCOST is located near Bala ji Dham, Jhajra, Dehradun and can be reached via Premnagar and Sudhowala, Dehradun. It is located in foothills of Shivalik range of Himalayas and, the scenic & adorable beauty of hill queen Mussoorie is directly perceptible from UCOST's campus. Regional Science Center (RSC) is under development by NCSM, Kolkata in collaboration with UCOST in its premise with the objectives to design, develop and fabricate science museum exhibits; demonstrate equipments and scientific teaching aids for science education; and to popularize science among people. The Science Park of RSC of UCOST encompasses dinosaurs park, outer interactive exhibits based on scientific laws, and planetarium, while, the RSC building hosts Fun Science Gallery, Himalayan Gallery, Innovation Cell, 3D Theatre, Auditorium of 200 sitting capacity, Exhibition Hall, Library and Meeting Halls. UCOST plays a catalytic role for the promotion of S&T through different science popularization, science communication and R&D tools and in complementing/ supplementing new as well as ongoing development programmes in Uttarakhand. Special emphasis by UCOST has been continuing since 2009 in drinking water sector with focus on better quality of water in adequate quantity for citizens in collaboration with Water Technology Initiative (WTI) Programme of Department of Science and Technology (DST), Govt. of India and Uttarakhand Jal Sansthan (UJS), Dehradun.

The duration of conference will be of 3 days during 21-23 December, 2015.

Abstracts

Abstracts must be typed in English (also official language of conference) and as informative of the text as possible. The organizing committee may not include the abstract, if it does not meet the guidelines framed. All text should be in Times New Roman font with font size of 12 and single spacing with one inch margin on all four sides of A4 size page. Title of the abstract should be typed in capital letters in bold. Name(s) and affiliation/ address(es) of author(s) should follow under the title. For papers with multiple authors, the presenting author should be underlined. Different affiliation of authors should be indicated by numbered superscript. Abstracts should not exceed 250 words limit (excluding titles, names etc.) in MS word format. Abstract should be submitted as an e-mail attachment or as an electronic copy in a DVD along with the hard copy. The deadline for submission of abstracts is **November 30, 2015**.

The soft copy of abstract should be sent by e-mail: infones88@gmail.com; nesapublications@gmail.com; nesapub@yahoo.co.in and prashantraj86@yahoo.com as well as hard copy by speed post to NESA office at New Delhi.

Instruction for the Papers to be contributed

Contributions are invited on all aspects of major themes of the conference. Contributed papers must be presented by one of the authors. Each presenter will be allotted 10 minutes for the presentation including 2 minutes for discussion. Chairpersons will take care of keeping sessions on schedule. Standard power point projector for the use of pen drive/ DVD will be provided to presenters.

Instructions for Posters

Posters must be prepared strictly as per the guidelines and should not be more than 1 metre wide and 1.5 metre height. The title should be typed in all capital letters at least 30 mm height. Under the title, name of authors, institutional affiliation and e-mail ID should be printed. A passport sized photograph of the presenting author must be placed at the right hand side of the title. The poster should be clearly understandable without oral description. Authors should be prepared to present their posters according to the programme.

Best Oral Paper & Poster Awards

To encourage students and young scientists, two awards will be given for the best two oral papers and two posters presented during the conference. Only the students/young scientists below the age of 35 years are eligible for this competition. Interested candidates should additionally send their age proof duly certified by the Supervisor /Head of the Department/ Institution along with abstract.

Publication of Full Papers

The four awarded and other significant paper selected by Sessions Chairmen will be published in the form of proceedings in special issue of "International Journal on Environmental Sciences" published by NESAI. Such authors will be required to submit the manuscript having title of the paper, author's names, affiliation and keywords on the first page followed by Abstract, Introduction, Materials & Methods, Results & Discussions, Conclusions, Acknowledgment and References. All the references should strictly follow the standard format of referred journal. All such manuscripts will be peer reviewed before final publication.

Registration

Please fill up the attached registration form and send it to the Academy's address by post along with demand draft or online payment voucher of registration fee. The registration form is also available on NESAI website (www.nesa-india.org). The person interested in attending the conference must pay the fee in advance and register.

Registration Fee

Participants	Before 30th Nov. 15	On the Spot
Full Delegates (Non-Members)	₹ 2,000/-	₹ 2,500/-
Full Delegates (Members NESAI)	₹ 1,500/-	₹ 2,000/-
Students Delegate	₹ 800/-	₹ 1,200/-
Accompanying Person	₹ 1,500/-	₹ 2,000/-
Industry and Private Organisation	₹ 10,000/-	₹ 15,000/-

The registration fee covers one copy of the abstract book, conference kit and attendance in all scientific sessions, lunch, tea / coffee during sessions, opening & closing ceremonies.

Students must submit a declaration certificate signed by their Supervisor or Head of the Department/ Institution certifying that he/ she is currently registered for a post graduate/ Ph.D. degree.

Payment of Registration Fee

(a). By Demand Draft:

The Registration Fee is to be paid in Indian Rupees in the form of Demand Draft, to be made in favour of "NATIONAL ENVIRONMENTAL SCIENCE ACADEMY" payable at NEW DELHI and must be attached and send with registration form and abstract.

(b). By Online Payment/ Bank Transfer:

Account Name: National Environmental Science Academy

Bank Name: Bank of Maharashtra, Kalkaji Branch, New Delhi - 110 019

Bank Account Number: 20066872035

Branch Code: NEW DELHI, KALKAJI (974)

IFSC: MAHB-0000974

Conference attendees can either directly transfer the registration fee into account using account number and IFS code. After making the payment, kindly mention payment details in your registration form and also send original receipt along with abstract by speed post.

On the Spot Registration

The registration desk for 'On the Spot Registration' will be located at the **Uttarakhand State Council for Science and Technology (UCOST), Vigyan Dham, Jhajra, Dehradun on 21st December, 2015**, where cash as well as demand drafts will be accepted for registration fee.

About Connectivity to the Dehradun

Dehradun has one Airport called Jolly Grant Airport, which is located around 40 km from venue of the conference (UCOST) and 25 km from Dehradun. Dehradun is also well connected by rail and road. The venue city has Haridwar and Rishikesh in its vicinity and is well connected by public transport and hired taxis to entire Uttarakhand, a tourists and pilgrim's state. The Railway/ Bus station (Dehradun) are at a distance of 13 km from venue (UCOST). There are also pre-paid taxi booking counters inside/ outside of the airport and bus/ railway stations. From safety and comfort point of view, we recommend the delegates to contact the pre-paid taxi counter.

Accommodation

The registration fee of the conference does not include accommodation charges. Accommodation for outstation delegates has been planned on payment basis in the Hotel Drona (GMVN), Gandhi Road, Dehradun. Accommodation can also be arranged in a wide range of hotels including five star hotels of international standard on request. The tariff of the rooms ranges from Rs. 500/- per person per day onwards depending on facilities. Since tourist season starts in November month, delegates are therefore, advised to book their hotels/ guest houses well in advance on their own or by sending additional demand draft along with registration form, registration fee and abstract.

S. No.	HOTEL / GUEST HOUSE	SINGLE OCCUPANCY	DOUBLE OCCUPANCY
1.	FRI Guest House	Rs. 500/-	Rs. 1,000/-
2.	Hotel Drona, Dehradun	Rs. 750/-	Rs. 1,500/-
3.	Other Hotel / Guest House	Rs. 1,500/-	Rs. 3,000/-

Above accommodation charges are per person per day and inclusive of bed tea, breakfast and dinner. Daily pick up and drop facilities will be available between both hotels / guest houses and venue (UCOST) at designated time during the conference.